

# BOARDWATCH MAGAZINE

**ELECTRONIC BBS AND ON-LINE INFORMATION SERVICES**

Editor: Jack Rickard

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## THE BBS LIST

This month *Boardwatch Magazine* presents a list of 205 bulletin boards/on-line services available in area code 303. See page 24. Our national selection lists 105 systems from across the country we think you'll find useful beginning on page 22. Corrections may be addressed via the Denver PC Boardwatch Echomail Conference, or by Fidonet Mail addressed to **JACK RICKARD** via Net 104 Node 555 at (303)973-4222.

## TELEBITS

### CHINA LINK VIA MODEM

Dave Hughes of Colorado Springs Colorado is one of the "Grand Old Men" of online communications pioneering many of the concepts we employ routinely today. His current themes are the NAPLPS graphic protocol, the use of data communications in education, Unix, and international modem communication links. If Dave's past track record of prognostication is any indication, you might prepare yourself for an international educational network using NAPLPS. He was a keynote speaker at the recent Global Networking Conference in Tokyo and has pioneered links with the Soviet Union Novosti Press Service. He is also the technical means behind Montanna's BIG SKY educational network and we look for him to be a key player in the emerging educational network here in Colorado.

Recently, Dave's son Ed Hughes graduated from the University and took a job under a Princeton University exchange program to teach conversational English in Dalian China. Professor Xiao (young) Ed is one of the few

people in that area equipped with a Toshiba T1000 laptop and a Touchbase Worldport Modem.

They found out that a long distance call from Dalian China to Colorado Springs Colorado is a bit pricey at \$3.69 per minute or a little over \$220 hourly. So Dave and Ed determined that they could link up at about \$56 hourly if the call originated in Colorado Springs. Each week they exchange files via an agonizing 300 bps link and Dave posts the China News from son Ed on Dave's **ROCKY MOUNTAIN HIGH BBS** at (719)632-2658. This is Mr. Hughes latest information system - a Unix system running on a hot 386 machine that pretty much retires his old Convergent Technologies Minicomputer.

This provided some interesting reading for the Rocky Mountain High callers. They didn't realize when they started this that the student unrest in China would develop into such a serious situation.

The **ROCKY MOUNTAIN HIGH** system is also a public node of the **UUCP (Unix-Unix Copy Program) USENET** network. This is a worldwide network of Unix machines located in Universities, research labs, hi-tech corporations, and so on carrying over 520 different message conferences in the Usenet Newsnet. Messages entered on any node in the conference are echoed to all other systems carrying the conference. One of these conferences is titled **SOC.CULTURE.CHINA**. If you read in the popular press about the modem link with China via a University Network, this is what they are talking about.

With the current activity in China, this conference has exploded with activity running as high as 200-250 messages

per day from Glasgow Scotland, Cambridge University in England, schools in Amsterdam, Hong Kong, and of course throughout the US. It is one of the few completely uncensored newslinks with the Chinese mainland in the wake of the situation in Tiananmen Square.

One of the messages from a UCLA student visiting China noted that with 150,000 students in the square, trash and waste was a real problem and what they really needed were some Hefty Cinchsaks/plastic trash bags to help haul it off. The news spread through the **SOC.CULTURE.CHINA** conference and an electronically coordinated collection plate was passed. A student volunteer jumped on an airplane for Beijing with a couple of pallets of trash bags for the students. All of it was coordinated by modem.

As this story was written, the at times almost festive spirit of the student demonstration in Tiananmen square was dramatically altered by an attack by the Chinese military forces. At least 1500 are feared dead.

Callers curious about **UUCP** message conferences are welcome to dial Rocky Mountain High at (719)632-2658.

### PRODIGY COMES TO DENVER

International Business Machines and Sears have teamed up to fund the most ambitious entry into the videotext market to date. They term the product **PRODIGY** and are introducing it to a new Metropolitan area each month. July 1989 is Denver's turn in the barrel.

**PRODIGY** is unique in that it is one of the first efforts at videotext to abandon the concept of a clocked fee schedule.



## TELECOMMUNICATION SYSTEMS

# EXEC-PC

## 50,000 FILES

For Your IBM PC, Mac or Amiga

As Close As Your Modem  
**BBS 414-964-5160**

**EXEC-PC, the country's largest electronic Bulletin Board Service (BBS), has the most extensive online collection of software available anywhere. Yours for the asking!**

"Exec-PC, the biggest, meanest, most off-dialed and audacious BBS this side of Silicon Gulch." *Milwaukee Magazine, June 1987*

"How important is the Exec-PC BBS? To borrow a line from a famous hamburger chain, I was the 1,282,770th caller served. And I do mean 'served.' Exec-PC is perhaps the premier BBS in the nation for exchanging software." *BYTE IBM Special Edition, Fall 1988*

"Exec-PC, the bulletin board answer to SuperStation WTBS, connects PC users continents apart." *PC World, July 1987*

"One of the best is Bob Mahoney's Exec-PC out of Shorewood, Wisconsin..." *PC Magazine, October 1988*

"They provide one of the largest, most extensive libraries of public domain software in the world." *Denver PC Boardwatch, December 1987*

"Exec-PC Network is by far the largest BBS we've ever seen. You say you want files? This board has them—whatever kind you want... In addition to having one of the largest selections of public domain software, this BBS is a good source for technical information and help." *PC Resource, October 1987*

### WHAT YOU COULD HAVE

Would you like public domain and shareware word processor programs, communications programs, or excellent database management systems? How about personal money managers, or General Ledger programs? If that is not enough, look at the 3000 games and 15,000 free business oriented programs, utilities, tutorials, and reviews. This gives you everything from hard disk reorganization and backup to stock market management systems. We also maintain the *entire PC-SIG collection* online, the 1200+ diskette collection of public domain software from California.

### WHO HAS IT?

Exec-PC owns and operates the nation's largest electronic Bulletin Board System. Through our BBS, our huge software collection is available to anyone who has access to a modem and a telephone line. We have more than 70,000 individual files available for immediate download to your computer 24 hours a day, every day.

### Registration Form

## EXEC-PC

P.O. Box 11268 Shorewood, WI 53211

**YES!**

Register me on the Exec-PC BBS for full access to the country's largest collection of software plus thousands of informative messages and conferences.

☐ 1 Year \$60

☐ 3 Months \$20

☐ Check Enclosed

☐ Visa



☐ MasterCard



Credit Card Account # \_\_\_\_\_

Signature \_\_\_\_\_

Expires \_\_\_\_/\_\_\_\_

### WHAT IT IS

The BBS consists of a large computer with BIG disk drives (more than 3 gigabytes) and many phone lines connected to it. The computer currently has 90 phone lines, allowing it to talk to 90 callers at once; it receives about 2000 calls per day. Using the BBS is easy, since it is menu driven and you simply choose what you want to do.

### WE SURE HAVE FILES

A typical user will call the BBS, ask the BBS to show what files are new since his or her last call, find files of interest, then transmit those files across the phone line. After hanging up, the caller can examine and use the new software.

### WE SURE DO TALK

Our BBS also has an active conference system where thousands of people share ideas and solutions. Some conferences include: PC General Topics, Communications, For Sale, Programming, Desktop Publishing, LAN, Graphics, Hardware Speedup, CAD/CAM, Private e-mail, etc. Why pay expensive consultants when there are hundreds of experts available in our forums and conferences?

### HOW TO CALL THE EXEC-PC BBS

1. Set your asynchronous modem for 8 data bits, No Parity, 1 stop bit.
2. Dial 414-964-5160.
3. The BBS will ask for your name, then you will be guided into the menus.

### IT IS FREE, BUT

You can call the BBS at any time without registering. You can tour the system, read messages, and download some of our files. For greater access privileges you may register at the following rates: \$20 for 3 months or \$60 for one year. There are no hourly or hidden fees! You may subscribe online with VISA or MC, or by credit card, check or money order with the form below.

### Exec-PC

P.O. Box 11268 Shorewood, WI 53211

Voice Orders 414-963-2880 **BBS 414-964-5160**



Prices & Specifications subject to change without notice.

## BBS 414-964-5160

Name \_\_\_\_\_ Date \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone (\_\_\_\_) \_\_\_\_\_

Company (optional) \_\_\_\_\_

Name you will use for Logon to BBS (required)

First \_\_\_\_\_ Last \_\_\_\_\_

Password \_\_\_\_\_



Most online services charge callers by the minute for "connect time" much as long distance telephone carriers charge per minute for calls. **PRODIGY** has replaced that with a flat \$9.95 per month charge allowing unlimited connect time from 7:00 AM to 1:00 AM.

Most of the freight for **PRODIGY** is paid by advertisers such as K-Mart, Sears, and so forth. Offerings include Dow Jones News Stock Quotes, Consumer Reports, **EAASY SABRE** travel feature, movie reviews, and sports. Locally, First Interstate Bank of Denver is offering a free three month trial of their online **Day & Night Banking** service to allow customers to pay bills, check account balances and make account transfers online.

To use **PRODIGY**, you must have a computer, modem, and a copy of their specialized terminal software. The "starter kit" includes manuals and terminal software for \$49.95. They are waiving the fee for the startup kit until **July 7** via a massive direct mail campaign in the area (we received five different packages from various mail lists). A Hayes 1200 bps modem is available through **PRODIGY** for \$99.95 if you don't have one. To order the startup kit, dial (800)822-6922 and ask for extension 516. They will automatically begin billing you \$9.95 monthly but you can cancel at any time if you find the service less than useful. Prodigy Interactive Personal Service, PO Box 4064, Woburn, MA 01888.

#### **GALACTICOMM ANNOUNCES NEW 16-SLOT SERIAL EXPANSION CHASSIS**

The most readily noticeable difference between the free, hobbyist BBS and the "for fee" information service is the number of telephone lines. The free BBS simply cannot afford multiple access lines to their system. If they do provide a good service, the board will quickly fill up and reach the capacity of the single line. Other callers are greeted with a busy tone hour after hour. Some popular free systems are virtually impossible to get into.

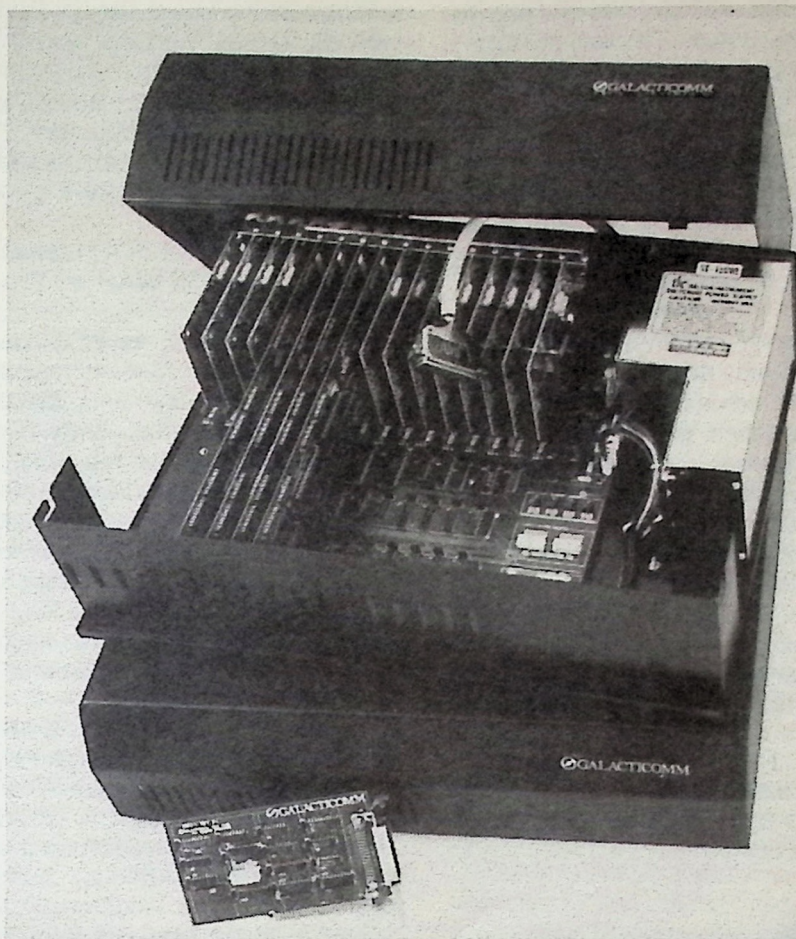
Pay services have the cash flow from new subscribers each month to afford two, three, four, or more telephone lines installed on a hunt group. When you dial in, the telephone company automatically connects you to the next available line in the series. And those who do pay to support such systems pretty much demand a multiline service to prevent being locked out by busy signals after putting up \$40 or \$50 for an annual subscription to the service. Each line can support 35-50 callers daily. As a result, many of the serious pay systems have 8, 16, 20, or even more telephone lines. Perhaps the largest system, **EXEC-PC** in Shorewood Wisconsin, currently sports 90 lines.

Connecting multiple telephone lines to a single PC can be a bit problematical. In the first place, the original PC only supported a maximum of two serial ports. All modems require a serial port whether they are external and connect

to an RS-232 connector or internal and connect directly to the bus. Most internal modems can now be configured as COM1 through COM4 but it can be difficult to get more than two modems working even then because each must have an IRQ (interrupt request assignment) assigned.

To get around this, several manufacturers have developed cards to provide 4, 8, or 16 serial ports with individual external connectors on a hydra of cables hanging out the back of the PC. Digiboard is one of the more popular manufacturers of serial breakout cards. And some manufacturers have actually produced cards with multiple modem modules on a single card.

Galacticomm of Fort Lauderdale Florida has come up with a pretty hot solution to this multiple telephone line/modem rubick's cube. They've developed a device to put cheap, inter-



**Galactibox 16-Slot Serial Expansion Chassis.**



nal 2400 bps modem cards into play on a multiline system. The new product is termed a Galactibox or more briefly, a G-Box. It's actually a PC expansion chassis with room for up to 16 serial devices along with the logic circuitry necessary to sort out the COM1/COM2/COM3/COM4 mess using a stacked port address polling method.

According to Tim Stryker, president of Galaticomm, the usual wisdom that hardware interrupts are inherently more efficient than a polled system is not necessarily true. Apparently, on any interrupt, the microprocessor has to save a series of register contents onto the stack, service the interrupt, and retrieve the registers before receiving the next interrupt. In real world applications, it will usually be more efficient to save the registers, poll all devices at once, service them one by one, retrieve the registers and return - according to Stryker. For the less technically inclined, he's saying if you have the software to do it, his polling method is about as fast as the normal IBM way of doing it.

The polling method can be thought of as "multiplexing" the group of devices. Each slot is configured with a dip switch for a particular address. The slot is enabled if the high order six I/O address bits match the slot and chassis address.

The device links to a PC via a cable and a bus circuit card that plugs into the "host" PC. The unit has been tested a variety of hosts up to an 80386 running at 33 MHz. Up to four G-Box chassis can be connected to a single PC giving a total line count capability of 64 lines.

The G-Box is priced at \$2192 and Stryker is offering internal 2400 bps modems at \$104 each for a "full bag" price of \$3888 for a sixteen modem bank - a very attractive \$243 per line. Further, the box can handle any serial device including high-speed modems up to 19,200 bps, facsimile cards, voice mail cards, or even serial port breakout cards.

Use of this system allows some significant flexibility and a good price per line ratio if you can match it to your software. Galaticomm also markets a

multiline BBS package that you can use with the G-Box, but use with other packages requires some considerable software expertise. Galaticomm, Inc., 4101 SW 47th Ave., Suite 101, Fort Lauderdale, FL 33314; (305)583-5990 (voice); (305)583-7808 (BBS).

### AT&T - MCI PRIME FOR LONG DISTANCE PRICE WAR

On March 16, 1989, the FCC quietly reached a historic decision regarding the way we regulate long distance telephone service in this country. Essentially, they replaced the "rate of return" formula that limited AT&T's profit to some 12+ % of their investment with a new price "cap" that essentially does nothing in today's era of declining long distance costs. We predicted a long distance price war as the probable outcome and welcomed the opening shot.

In our June issue, we described MCI's new **PREMIER CALLING PLAN** which was patterned after AT&T's **REACH OUT AMERICA** program. The MCI offering granted reduced rates beginning at 7:00 PM vice AT&T's 10:00 PM start time. Additionally, they offered a \$5 per hour rate from Midnight Friday through Midnight Saturday. Apparently, AT&T intends to respond with a \$140 million dollar across the board cut in long distance rates including new rates for **REACH OUT AMERICA**. The new rates will go into effect July 1.

How low can the rates go? According to the documentation filed with the GAO during the recent competition for the upgrade of the federal government telephone system, FTS 2000, AT&T claimed it could deliver long distance services at \$3 per hour and still make a modest \$26 million first year profit. That would have to be the "floor". But note that AT&T still has 80% of the long distance market. If MCI, Sprint, and other carriers can make a dent in that, the price war could be long and bloody for LD carriers and a boon to the calling public. If they can't gain a larger share, it might be more of a long drawn-out bridge game than a war. We'll go out on a limb and predict a \$5 hourly long distance rate anywhere in the continental US from about 8:00 PM to 8:00 AM within two years.

And it may not be so bloody after all. Long distance calls don't really cost the carriers a cent. They pay for billing and administration, and the cost of the lines and equipment. These costs are not precisely "fixed" but they don't vary directly and immediately with the number of calls. If lower long distance rates cause America to truly begin "reaching out" more often, particularly in off-peak hours, it may very likely improve the bottom line for all players.

US Sprint is the most vulnerable to this battle. They just completed a two billion dollar upgrade to 100% fibre optics and were just beginning to turn years of losses into a modest profit after finally bringing some sanity to their notoriously inaccurate billing system.

The one downside for consumers? The previous regulatory environment encouraged AT&T to invest unlimited amounts of money into research and the very latest and best equipment. For each dollar they invested, they could take a twelve-cent profit. The only way to increase profits was to buy more and better equipment, buildings, etc. While this did not directly lead to the most efficient organization known to man, it did largely lead to the Cadillac of telephone systems. We had nothing but the best whether we liked it or not.

In the new environment, there is great incentive to "do more with less." Anyone who has used a telephone can tell you that particularly during peak calling periods, service is not up to what it was before divestiture. It is not uncommon now to try a Monday morning long distance call (the busiest long distance calling period of the week) and be notified that "all circuits are busy". AT&T now has a powerful reason to carry more calls on less equipment and use aging equipment longer. Bottom line? Cheaper long distance calls, but a less reliable telephone system.

### TBBS SYSTEM OPERATOR SYMPOSIUM SCHEDULED

eSoft Incorporated of Englewood Colorado has announced their second annual TBBS Symposium to be held September 14-16, 1989 at the Clarion Denver Southeast Hotel. eSoft, Inc. has



developed one of the most popular multi-line BBS software packages in existence with their The Bread Board System or TBBS as it is commonly known enjoying over 10,000 installations world-wide. The most notable feature of the program is its ability to support up to 32 telephone line access nodes from a single IBM PC AT compatible or 80386 unit using expanded memory and up to 16 lines based just on the usual DOS 640K machine. Most multiline packages require multiple machines under a LAN of some type to carry that number of lines.

The TBBS Symposium 88 held last year was by any measure a success with over 100 system operators from across the country attending the \$125 conference. They were rewarded with details of the version 2.1 release of TBBS along with a surprise announcement of a dBase III+ compatible compiler extension for TBBS, termed The Data Base System (TDBS), that will allow true online transaction processing. The extension ostensibly will allow programs written in the dBase development language to be compiled by TDBS to work as a dBase compatible online database. A very preliminary "prerelease" version of TDBS is available on the TBBS support system at (303)699-8222.

This year's symposium will be priced at \$450 and limited to the first 125 registrations received by August 11. Topics scheduled include the psychology of E-Mail, configuration design and performance, high-speed error-free modems and the new 16 port Digiboard setup, CD-ROM and WORM drive workshop, and of course, the new TDBS extension.

Hotel rooms are available at \$50 single or \$60 for a suite - call (303)790-7770 for reservations. eSoft, Inc., 15200 East Girard Ave., Suite 2550, Aurora, CO 80014; (303)699-6565.

#### **HAYES 9600 BPS SYSOP DISCOUNT PROGRAM - TOLL-FREE 800 BBS**

Hayes Microcomputer Products has announced resumption of a 70% BBS system operator discount program on their

\$1299 Hayes V-series Smartmodem 9600 bps modem. The unit is available to qualifying system operators at a price of \$405 between May 1, 1989 and July 31. This duplicates a sysop discount program Hayes sponsored last fall during September and October.

The one fly in the ointment over the Hayes 9600 bps offering is the lack of V.32 compatibility. Other vendors are jumping on the CCITT V.32 standard bandwagon with vigor. US Robotics broke ground with a combination HST and V.32 modem that began shipping in February. Telebit is beta testing a combination V.32 and PEP modem now. Multitech is already spotting their 924EH 9600 V.32 model on bulletin boards by offering a discount to \$600 for BBS operators and even Racal Vadic is now mounting a sysop discount program for their 9632 VP V.32 model. All these models have CCITT V.32 compatibility and most have a secondary proprietary protocol as well. All can communicate with each other using the V.32 mode. The Hayes V-series can only communicate with another V-series at the 9600 bps rate.

Hayes has also announced an eight-line product support BBS using the Smartmodem 9600 units over toll-free telephone lines. The service operates at (800)874-2937 with four telephone lines available at that number. The board offers support for the Hayes modems and the company's SMARTCOM communications software. John Aitken, Hayes Microcomputer Products, Inc., PO Box 105203, Atlanta, GA 30348; (404)441-1617.

#### **US WEST RE-ADRESSES DIRECTORY ASSISTANCE**

Last January 1, US West dropped the practice of giving out addresses as part of their directory assistance service due to fears that they might be violating elements of the 1984 modified final judgment divestiture agreement banning Regional Bell Operating Companies from engaging in information services. Since dropping the function, US West has been deluged with complaints from a number of groups, notably the Denver

based United Organization of Persons with Disabilities, concerning the changes.

This past month, the U.S. Justice Department recommended that Judge Harold Greene grant both US West and Ameritech a formal waiver of the rule as it applies to directory service to eliminate the confusion. As of June 1, 1989, US West resumes the practice of giving out addresses to those who specifically request them. In the 14 state area covered by US West, approximately 232,000 directory request calls are handled each day. According to company officials, less than 5% of these inquiries request address information as well. Most callers were unaware that you could obtain address information in addition to the telephone number requested.

#### **IBM ANNOUNCES 65 NS RAM CHIP**

IBM Corporation has announced development of a 65 nanosecond 1 megabit Dynamic Random Access Memory (DRAM) chip. The previous standard for "fast" DRAM chips was 80 ns. Further, IBM announced they were continuing development of a 4 MB 65 ns chip. Rumor has it that the company has also successfully developed an experimental 1 MB DRAM with at 22 ns access time.

#### **MOBILE PC RADIO NET APPROVED**

The Federal Communications Commission has approved a nationwide data communications radio network intended to link mobile data terminals. The proposed network would allow sales representatives or anyone with a need for computer access from the field to connect with their company host system via hand-held or vehicle-mounted terminals.

A three year construction permit has been granted to American Mobile Data Communications, Inc. of New York. The AMDC network will use radio frequencies in the 900 MHz band which is referred to as the Specialized Mobile Radio Service (SMRS). The digital network will transport data at 1200 to 4800



bps through regional control centers located in the 50 largest metropolitan centers. These centers will connect over the air radio signals to the existing public switched telephone system and packet switched networks which can then carry the link to the desired host system/online service. The initial network could handle about 10,000 users per regional control center.

### POPE JOHN PAUL II - THE HOLY SEE-SOP

According to the United States Catholic Conference, there are 879 million mackerel snappers world-wide. A new Vatican voicemail telephone system can handle up to 48 of them at one time and deliver a recorded Papal inspirational message from Pope John Paul II. The Pope will record a new message each day in English, Spanish, and Italian via Vatican Radio - the Pope's Radio - which will then make it available via voicemail.

- Italian 011-39-7779-3010
- English 011-39-7779-3020
- Spanish 011-39-7779-3030

### MICROCOM INTRODUCES LOW COST V.32 MODEM

Microcom Incorporated of Norwood Massachusetts announced on May 25 their new model QX/3296c modem. The new model is a CCITT V.32 compatible high performance modem capable of achieving error-free data throughputs up to 19,200 bps over dial-up lines.

The new QX/3296c combines several notable features including the Microcom Networking Protocol (MNP) class 5, built in UUCP/Kermit protocol support, and a remote access function incorporating a security function. Most notably, the modem will connect with any CCITT V.32 (9600 bps), V.22bis (2400 bps), Bell 212A (1200 bps) or Bell 103 (300 bps) modem.

Microcom joins such notable modem manufacturers as US Robotics, Telebit, Multitech, and Racal Vadic in announc-

ing support of the V.32 standard in a multimode modem since January 1, 1989.

The latest Microcom V.32 announcement also offers something of a price breakthrough at a list price of \$1199. Microcom, Inc., 500 River Ridge Drive, Norwood, MA 02062; (617)551-1000.

### AT&T, TELENET, MCI X.400 E-MAIL BRIDGES ANNOUNCED

A universal electronic mail service is coalescing from the heretofore "Tower or Babel" existing in the E-Mail market place. Until recently, virtually all E-Mail vendors were busy jealously guarding their few existing subscribers and connecting to other services was pretty much out of the question. Earlier this year, the Aerospace Industry Association laid down the law - provide bridge links to end this E-Mail madness or else. And the E-Mail services are jumping into line. At the recent International Communications Association conference held in Dallas, Telenet E-Mail service announced connections with both AT&T E-Mail and MCI Mail. Users of all three services can exchange messages using the CCITT X.400 recommendation for electronic mail. Telenet boasts a total of over 300,000 E-Mail users while MCI and AT&T present 100,000 and 50,000 subscribers each.

Meanwhile, Dialcom, Inc., of Rockville Maryland has announced separate agreements with both AT&T and MCI to not only allow E-Mail exchange, but access to their proprietary database services as well. And both AT&T and Telenet are actively lining up links with other nations. Telenet currently exchanges mail with 14 foreign countries while AT&T sports links with six nations.

### UNLISTED NUMBERS

Survey Sampling, a Fairfield Connecticut research firm reports that 28% of all US households have an unlisted telephone number. Los Angeles is the worst with a 56% unlisted level.

### MACINTOSH ONLINE SERVICE

With 70,000 subscribers, MacWEEK Magazine has developed something of a name among magazines devoted to the Apple Macintosh computer. Connect Inc. announced a new online information service titled MacWEEK Hotline on the Connect Professional Information Network. Beginning June 1, callers can access a full-text database containing data on thousands of Macintosh products.

To access the MacWEEK Hotline, you will need the Connect Network Access Software in addition to an Apple Macintosh or IBM Compatible PC and modem. From June 1 through the first of September, MacWEEK subscribers can get a complimentary copy of the Connect software by mailing in the cover of any issue of MacWEEK magazine along with \$9.95 for overnight delivery charges. Denver local access for this service is (303)832-3447.

The Connect service provides an icon-based graphical interface online service for both IBM compatible machines and of course the Macintosh. Connect Inc., 10101 Bubb Road, Cupertino, CA 95014; (408)973-0110.

### US WEST OMAHA INFORMATION GATEWAY

US West Communications has announced the name of their information gateway offering scheduled to begin internal testing among some 300 employees this coming July and a full introduction to the public in October. The new service will be titled "CommunityLink Service by US West". Anchored by the Omaha World Herald newspaper, US West hopes the service will have nearly 100 information providers online by sometime early next year. The service will allow Omaha residents to dial into the service and connect to any of the information providers via an online menu. Any access charges would then appear on the customers regular telephone bill.

Acknowledging that not all homes own or want a PC, US West has made arrangement for TEL-E-TEX INC. of Omaha to sell or lease a videotex ter-



minal made by Philips, Hilversum, the Netherlands. The unit is manufactured in France by Philips subsidiary La Radiotechnique Portenseigne. The Philips M2 unit will sell for around \$270 or rent for \$10-\$12 monthly and supports the Teletel protocol used by the French Minitel system. The unit is very simple to operate and requires virtually no familiarity with personal computers. Tel-e-tex will also sell an inexpensive software program to allow personal computers to emulate the terminal.

### MARYLAND BANS JUNK FAX

Maryland Governor William Schafer signed a bill into law on May 25 banning junk facsimile messages. After July 1, unsolicited advertising transmitted via facsimile could cost the sender \$1000.

Maryland becomes the second state to ban facsimile with Connecticut paving the way a few weeks earlier. A national fax bill is currently wending its way through the halls of Congress and most pundits give the bill a good chance of passage. The bill is currently under review by the House Telecommunications and Finance subcommittee which is holding public hearings on the matter. Numerous other states are considering laws regulating facsimile transmission.

Junk fax have become something of a problem we're told. Initially, fax paper suppliers discovered that they could solicit orders from a very well targeted market by transmitting ads and coupons for paper directly to the fax machines. It worked so well that other companies jumped on the bandwagon. Several firms have collected large lists of fax telephone numbers to offer for rent after the fashion of the direct mail industry mailing lists. The problem with the technique is that the recipient pays for the message because it is printed out on their paper. More seriously, it takes several minutes of connect time to transmit a fax page. With the large number of junk fax transmissions some businesses were allegedly receiving, the machine was virtually unavailable for receipt of desired fax communications. Industry analysts project fax traffic at

30 billion pages this year with an installed fax base of 2.9 million by the end of 1989.

Does this regulation concept have merit? We don't think so. In the first place, the vast majority of business facsimile communications occur during normal business hours. If it absolutely positively has to get there overnight - let's just go ahead and send the damn thing now and be done with it. But almost all advertising transmissions occur overnight when telephone rates are cheaper. The ratio of the cost of fax paper to the cost of the telephone call is such that it would be prohibitively expensive to really put a dent in a paper budget by long distance telephone. And the most reliable estimates of actual junk fax transmissions seems to indicate that businesses are actually plagued by an average of **ONE JUNK FAX DAILY**.

It makes perfect sense that junk fax would be a problem. But so far, they just haven't been. We've got some problem solvers here leaping to action in search of a problem. While it may be better to be safe than sorry, there are many other non-problems with future potential just begging for these intellectual giants' attention. Take old people. The place will be reeking with them in a few years when we baby boomers reach the age of complaint. The greenhouse effect. Who wants a completely green earth crawling with carbon dioxide sucking plants? And all those South/Central American countries. They elect politicians, shoot the winners, shoot the losers, and line up for another election. According to John Loveridge, noted intellectual, political seer, and amateur gynecologist, this is a transparent attempt to breed political ambition out of the latin American races using Darwins natural selectivity mechanism. He not only thinks we should let well enough alone - better yet, take a page.

But most of all, we much prefer fax transmissions and direct mail pieces to the alternative - voice telephone sales solicitations. In contrast to the proponents of direct mail, fax, and voice sales solicitations, we completely reject the "free speech" argument these organizations hold out. Companies are welcome to say anything they like but

there is no constitutionally protected right to use someone elses equipment to do it. But fax transmissions cost the recipient very little and even that is controllable. Several devices are coming on the market now to require essentially password access to fax machines. PC fax cards allow the recipient to review incoming messages prior to printing - the fax message can be read and if of no interest, sent to RAM heaven at a keystroke. We think technology and the free market mechanism can deal with fax advertising much better than the technological experts seated in Congress.

If they insist on finding virgin pastures in the regulatory wilderness and just demand something new to regulate, we do advocate laws limiting voice sales solicitation calls - an obnoxious intrusion by any account and generally without exception. You do not need to leave the shower or the throne to answer a fax and it will not get you up from dinner.

### WILDCAT 2.0 BBS SOFTWARE RELEASED

Mustang Software of Bakersfield California has announced release of version 2.0 of their popular **WILDCAT BBS** software. Most notably, the new release supports multiple telephone access line operation with a ten line package available for \$249 and a version that will support up to 250 nodes for \$499. Up to four nodes can run on a single machine under the Desqview Multitasking software and the product runs under most LAN software. Like **PCBoard**, it has the ability to run external programs over multiple telephone access lines.

**Wildcat** is written predominantly in Turbo Pascal with the routines that actually handle asynchronous communications written in assembly language. All message databases and file areas are indexed under B-Trieve allowing a very fast search for messages and files. The new version has added hot-key menus, improved message threading, and the ability to handle up to ten external file transfer protocols. Most notably, the new version supports the **BIMODEM** file transfer protocol.



**BIMODEM** is the only protocol that allows simultaneous upload and download of files.

The two-year-old Wildcat program currently enjoys an installed base of 2000 systems in all 50 states and twenty foreign countries. According to Jim Harrer, "Wildcat is off to a late start compared with **TBBS** and **PCBoard** and we intend to work hard to catch up." The company offers free telephone support at (805)395-0223 and a support BBS - appropriately titled **THE CAT HOUSE 206/2901** at (805)395-0650. Mustang Software, 3125 19th Street, Suite 162, Bakersfield, CA 93301; (800)999-9619.

### **NCAR CRAY COMPUTER GOES TO SMITHSONIAN**

The National Center for Atmospheric Research in Boulder Colorado has donated a 1967 vintage Cray I computer to the National Air and Space Museum at the Smithsonian in Washington DC. The Cray went on display May 12 as part of the new gallery "Flight Enters The Computer Age" which explores the role of the computer revolution as it affects aerospace.

### **HAYES BUYS JT FAX PRODUCT LINE FROM QUADRAM**

Hayes Microcomputer Products Inc. announced purchase of the **JT FAX** product line from Quadram Corporation as of June 1. The **JT FAX** product has established itself as the leading internal circuit card facsimile product for IBM compatible personal computers. It allows users to send ASCII text/word processing documents out as fax transmissions without the interim step required to print out the document to send it via the normal stand alone fax machine. Conversely, the card also allows incoming fax to be stored to disk, edited, or deleted without printing.

Under the agreement, Hayes gains all rights to manufacture, distribution, trademark, and design and most of the product development team will immediately go to work for Hayes. Quad-

ram will continue to manufacture and market the product for a limited transition period under license to Hayes.

"Facsimile is an important step in integration of image and data communications. By adding the computer facsimile products, Hayes continues to provide a comprehensive set of computer communications solutions," said Hayes president Dennis C. Hayes.

The **JT FAX** product line includes a \$295 internal circuit card supporting 4800 bps facsimile transmission, a portable external unit that plugs into any RS-232 serial port at \$495, and a \$795 internal circuit card providing 9600 bps transmission capability. A new enhanced product termed the **JT Fax Pro96** includes the 9600 bps fax transmission capability and a built in 2400 bps modem. Quadram Limited Partnership, 1 Quad Way, Norcross, GA 30093; (800)548-3420

### **VIDEOTEXT INDUSTRIES ASSOCIATION REPORT**

The Videotext Industries Association has released a 90 page report titled "Opportunities in Videotext: A Guide to Communicating and Marketing through Electronic Services." Among other things, the report details the cost of setting up your own videotext service for \$10,000-\$40,000. The report is free and you can obtain a copy by calling VIA at (703)522-0883.

### **PCGUIDE CD-ROM CATALOGS SOFTWARE**

by David Hakala

Keva Systems of Lakewood Colorado is compiling the world's most comprehensive guide to MS-DOS and OS/2 commercial, shareware and public domain software. Scheduled for release this summer, the compact-disc magazine/encyclopedia will include over 20,000 commercial product reviews and demos, as well as 250 MB of shareware/PD software. The **PCGuide** CD will be bundled with CD-ROM disk drives, sold as a standalone product directly to libraries and Fortune 500 companies and distributed through thousands of dealers. User groups par-

ticipating in Keva's shareware collection-drive will receive the \$299 disk at no cost.

**PCGuide** is a sequel to the highly successful **MacGuide** CD, which sold over 5,000 copies to Apple enthusiasts worldwide in record time. Demand for an IBM edition prompted Keva, which produced the **MacGuide** disk, to undertake the daunting task.

More than a dozen editors are working eighteen to twenty hours per day, pumping product descriptions, prices and system requirements into Keva's database. As of this writing, approximately 5,600 of the 20,000 or so records have been compiled. The vast library is organized under a custom database structure developed by Keva's Mac gurus.

Software developers can buy space on the disk for their demonstrator programs at the very reasonable price of \$1.00 per kilobyte. The solid success of the **MacGuide** CD makes this a good bet. The second edition of the Mac CD has attracted even more demos than the first. Future editions will include two disks, one each for demos and shareware.

**PCGuide** will appear first as a CD, and possibly later this year as a printed counterpart of **MacGuide** magazine. The economics of electronic versus hardcopy publishing overwhelmingly favor the former medium. But market demand may persuade Keva to do things the old fashioned way too.

Keva is more than a computer magazine. It also produces dazzling color-and-sound digital videos for corporate clients, using the full capabilities of the latest Macintosh products. The animation and stereo sound of these disk-or-tape commercials is overwhelming.

Early-Apple era hackers wistfully reminisce about "the days when computing was FUN!" Those days are returning to Lakewood, Colorado. Keva's offices are typically corporate (much glass and wood), but the only necktie was worn by another visitor. The founder's hair curls about his shoulders, and the wizard of database development unleashes his creativity by



removing his shoes. "Keva" is an American Indian term for a particular sacred place (also for a nubile female).

The employees I met all acted like they were "on a mission from God." They seemed to be enjoying both each other and work some people would call drudgery. Perhaps there is yet hope for American business!

I've always wondered how teenaged prodigies such as Adam Hudson (author of QuickBBS) would turn out as adults. Meeting Bruce Tizes, founder of Keva Systems, satisfied my curiosity. After graduating from high school at age 15, Tizes zipped through college in two years and obtained a MD degree at the Chicago Medical School's University of Health Sciences by age 20. He did a two-year residency, then practiced ophthalmology at King's County Hospital in New York for five years. Now, at 28, Tizes is forging the IBM equivalent of the Oxford Unabridged Dictionary.

A fast track for anyone, but Tizes simultaneously built one of the largest Mac user groups and bulletin board systems in the country, with over 400 Mbytes of files and some 3,000 users. That behemoth is now available to 20,000 users via the Connect information gateway.

Tizes is also a director of **MacGuide**, and was tapped by Apple to head its Advanced Technology Products CD-ROM division. He plans to re-establish his medical practice and perhaps move the BBS to Denver once the **PCGuide** product is launched in August. The secret of living so many careers in one body? "I do only what I like," says Tizes.

What he likes is empowering people to live as fully and productively as he does. Medicine is one way to free people of physical limitations; information technology is yet another. Like all who make significant contributions to the world, Tizes is motivated by more than money. He takes the commercial success of Keva seriously because it is the stuff by which dreams can be made to come true; but money is not the substance of those dreams. Keva Systems, CD-ROM Div.: 550 So. Wadsworth Blvd., Suite 411, Lakewood CO 80226. Voice (303)936-0076.

## HOME OFFICE BUSINESS NETWORK

There are some pretty wild figures thrown around these days concerning the "**Home Office Worker**" phenomenon. Many sources are estimating 15 to 30 million home office workers. We would be surprised if there are two million people making a living out of the living room but more and more individuals work part time at home and many more bring work home from the office. This gives rise to a burgeoning market in home office equipment whether used by the part time hobbyist/moonlighter or the rarer but growing numbers of truly home-based professionals.

Along with the trend, come the hawkers trying to cash in on it. Dial Direct Response Marketing of San Francisco has allied itself with the relatively new Minitel Services Company (MSC) to present the **Home Office Business Network (HOBN)**. This is essentially a special interest area on the Minitel Services new 150 city network. The charter for HOBN is to provide a forum for the home-based professional to contact others of similar persuasion and exchange hints and tips for making business from home easier.

The concept certainly has an allure. But this service doesn't quite pull it off. A big part of the blame lies with Minitel net itself. And perhaps it is time to take this Minitel myth by the horns. In the first place, contrary to popular belief, the French Minitel system has never made a dime. It has been government subsidized and government supported from its inception and still is today. A growing controversy in France centers around whether the French people should continue paying this subsidy. The one thing Minitel has done is provide online directory assistance. It's also made a few of the information providers wealthy.

What Minitel has NOT done is anything even remotely innovative technologically. The only people likely to be impressed by the Minitel terminals and screen presentation are those who have never seen a TV screen or electricity. And for them, it would likely be a fleeting interest. For individuals accustomed

to any local BBS or commercial service such as Compuserve or The Source, the Minitel screen is an absolutely underwhelming display of piffel and tosh.

We've been seeing some "gee-whiz" press releases printed by a number of magazines concerning this Minitel Services Company and their network. To use the net, you must have their terminal emulation software. And there is almost nothing mentioned anywhere about where to get it. As it happens, the terminal software is freely available but until recently it was necessary to write to the company via US Post to request it. MSC then mails it to you on diskette. This seems a curiously cumbersome method to access a "leading communications product". They have made some efforts to alleviate this situation. MSC now operates a toll free 800 BBS at (800)999-6163. You would think this would be an excellent way of distributing their program to people most likely to use it (current modem owners). Unfortunately, the software is NOT available for download there. Rather, you fill out a reasonably thoughtful, if slightly arduous, survey questionnaire. MSC THEN mails you the software on diskette.

Modem owners are accustomed to instant gratification in accessing most bulletin board systems. They see a file, they want it, they get it. They see a telephone number, they dial it, they're on. Almost all competently run pay systems allow a certain amount of perusing, peeking, and poking around before hitting the caller with the pitch for subscription fees. Requiring the delays of postal delivery, signup, registration, etc., is likely to drive nine out of ten "interested parties" on down the road to one of the fourteen thousand other telephone numbers with tones abounding across the nation.

For the ever curious Boardwatch Information System subscribers, we've archived the Minitel software package into the file **MINTEL.LZH** using the **LHARC** file compression utility and placed it on the **Boardwatch Online Information Service** for download. You may download it quite freely by dialing (303)973-4222. You will find it in the **CURRENT INTEREST FILES** area off the main menu. You may then



## **BOARDWATCH ONLINE INFORMATION SERVICE (303)973-4222**

Boardwatch Magazine has earned a reputation for providing the most accurate list of electronic bulletin boards and on-line information services available in Colorado. By popular request, we are now offering an online service of our own, the **Boardwatch Online Information Service**

### **CURRENT ISSUE ONLINE**

The complete text of the current issue of **Boardwatch Magazine** is available for online viewing each month.

### **BACK ISSUES ARCHIVES/KEYWORD INDEX**

The complete text of back issues of **Boardwatch Magazine** beginning with the January 1988 issue are available for on-line viewing. Additionally, a keyword searchable index to back issues is available online. Simply enter a searchword and the system displays the article title, issue, and page number along with an ID code. Find the article in your printed issue or enter the ID code to call up the actual text of that particular issue online. Finding earlier stories on particular topics or products is now a snap.

### **BBS LIST DIALING DIRECTORIES AND COMMUNICATION SOFTWARE**

Pre-formatted dialing directories for communications shareware programs including Telix, ProComm Plus Test Drive, QModem SST, GT PowerComm, and Boyan. Simply download the dialing directory and place it in your terminal program subdirectory. The entire **Boardwatch BBS list** is available at the touch of a key. Dialing directories are updated each month. The **Boardwatch Online Information Service** will provide the latest versions of online communications software such as Telix, GT PowerComm, ProComm Plus Test Drive, QModem, and more. And finally, select BBS lists brought in from various cities around the nation. Find out what's happening with electronic bulletin boards right from the source - **Boardwatch Magazine**

### **USA TODAY DECISIONLINE UPDATE**

Gannett New Media's popular electronic online summary of the days events. Updated each weekday morning with 18 topical categories including News, Sports, Weather, Business Law, Banking, Real Estate, Insurance, Marketing and Trends, Technology, Telecommunications, Energy, Health, Personal Investing, and more.

### **BOXOFFICE MAGAZINE**

Film and Theatre trade magazine in print since 1920. Boxoffice Top 10 grossing films each week, new video releases, Hollywood News, and reviews of over 200 films - many not yet released - still in production. The definitive trade publication for theatre owners and film lovers.

### **NEWSBYTES MAGAZINE**

Award Winning weekly magazine monitoring the PC industry from reporting bureaus in San Francisco, Los Angeles, Atlanta, Toronto, London, Tokyo, Brussels, Sydney, and Washington D.C. The very latest in PC technology news. with categories for Apple, IBM, Unix, Business Applications, Telecommunications, Government and the Courts, Product Reviews, Boston Computer Exchange Closing Prices, and General Computer News.

### **INFOMAT MAGAZINE**

Available on over 200 BBS nationwide, Alan Bechtold's **Infomat Magazine** is earning a reputation for timely, hard hitting news stories on PC technology and online communications. Includes Charles Bowen's **Networkers Journal** and columnist Dan Gutman.

### **TO ORDER:**

Dial (303)973-6038 to charge your order to Master Card or Visa. Or, send personal check or money order to Boardwatch Magazine, 5970 South Vivian St., Littleton, CO 80127. Or dial the system at (303)973-4222 and select item 4. **Boardwatch Magazine Information**. Use the online subscription function to register online using Master Card or Visa.

<b>Boardwatch Magazine</b>	<b>\$28</b>
<b>Online Information Service</b>	<b>\$35</b>
<b>Online Service and Printed Magazine</b>	<b>\$50</b>



install the software and immediately put it to use to register and access the MSC system.

Before you get too excited about our largess in this matter, note that the software doesn't do much. It does allow your PC to emulate a Minitel Terminal. While this sounds exciting, brace yourself for a stunningly unimpressive display of yesterday's technology. It's a bit like watching a Cray Y-MP emulate a \$6 quartz wristwatch. The Minitel screen presents data in immense characters on a 40 character-wide screen. This is not only reminiscent of the early home computers of eight or nine years ago, it is actually more like the Readers Digest large type edition for the visually impaired. The result is there is never very much on the screen - a blessing or curse depending on what you expect in the way of information.

The program doesn't upload or download anything or have any attractive features whatsoever except that it does turn your PC into a Minitel Terminal. The F8 key becomes the SEND(ENVOI) key and F7 becomes NEXT(SUITE). F2 is used to cancel (ANNULATION) and so on.

The software does contain a directory of the 150 Minitel Net local access numbers. We dialed in from the local (303)893-3808 number which is one of a scant handful that support 2400 bps communications. The presentation of data on the system was excruciatingly slow at 2400 bps and we can't imagine what it would be like at 1200 bps. You provide a credit card number and a bit of personal information to access the service.

Once you have signed on, the 40 character screen and rude characters look more like a child's alphabet drill program than an online service. Most areas of the system are charged at a rate of \$0.17 per minute (\$10.20 per hour) although some are charged at a somewhat higher rate. You may access the Home Office Business Network (HOBN) by entering HOBN on the command line and pressing ENVOI (the F8 key).

Once in HOBN, we found it pathetically shallow, small, and uninteresting. The only thing of any possible use was the National Directory of Home Businesses. This purports to be a database of businesses operated from home divided into categories such as **COMPUTER**, **ADVERTISING**, and **PUBLISHING**. Most categories had either a single entry - or none at all. None of them seemed to be home based.

Why such a tirade in Boardwatch about this service? For one thing, expensive, cumbersome, and poorly executed but strongly marketed online services give the novice telecommunications enthusiast a dim initial view of a growing and thoroughly fascinating world of online information. With each additional participant, this "world computer" becomes stronger. And with each individual that tosses their modem in the top of the closet in disgust, we all lose a little bit. MSC has been heavily advertised and heavily promoted. It is already on the Southwestern Bell information gateway via US Videotel and rumor has it that US West is bringing it to town in their Omaha gateway experiment. Negotiations continue between MSC and Nynex, Southern Bell, and Bell Atlantic to appear on their gateways. Through some marvelously adroit and competent marketing, MSC is bringing us this service whether or not it has any technical or informational merit at all.

We entered HOBN paying seventeen cents per minute to see very little. But when we went to get out of HOBN and return to the directory of services, we found there was no exit command. No **BYE**, **OFF**, **EXIT**, **OUT**, **ADIOS**, **SAYONARA**, or anything of the sort. There was a dictionary of commands listing all the various ways to root around in this closet full of empty, dusty, fruit jars but no mention on any screen or in any listing of how to get out of there. So at seventeen cents a minute we sat and pondered this weighty question. We tried the help facility, the index of keywords, and the **GUIDE** key to no avail. Finally, we hit the F9 key **CONNECTION FINIS** which essentially dropped carrier from the net. The clock may still be running for all we know. We've notified the credit card company not to honor any charges from Minitel Services Company. Au revoir! And by

reading this, you may save yourself enough to pay the \$3.95 for Boardwatch - consider this issue on Minitel.

Minitel Service Company is not only marketing Minitelnet furiously to the regional Bell companies to get it on their information gateways. They are also desparately trying to attract Information Providers. To act as an information provider, you must have an AT or 386 class machine with an X.25 packet assembler/disassembler card. Minitel charges a \$1000 setup charge and \$1000 monthly. Of the \$10.20 hourly fee, Minitel also takes \$5.70 per hour. This leaves the IP \$4.50 per hour. With 225 hours of monthly connect time, the IP breaks even and MSC takes a cool \$2295.

If we understand this correctly, MSC would like us all to pay them \$10.70 per hour to access a 40 character screen filled with modestly inane information. And they would further like IPs to pay them at least \$2000 monthly for the privilege of providing this information. Sounds like good work if you can get it. We'll pass.

## TELE-TRIVIA

The US Census Bureau has announced that there now seems to be 247,880,396 of us and that we average six telephone calls daily. Hello? Harper's Magazine reports that a total of five twelve-year-olds were married in the state of Kentucky during 1987. May 10, 1989 marked the 70th birthday of Hostess Cupcakes. The confection did well from its introduction in 1919 until World War II when chocolate and sugar rationing led to a decline in taste quality and sales. As a result, the company added a cream filling and a squiggle of icing on the top. It must have worked. Last year, 400 million Cup Cakes were sold, and presumably eaten - though the sensitive mind shies from that conclusion. They say that inside each of us is a skinny person struggling to get out. I've found I can keep mine sedated with a couple of "Suzie-Qs".



## APPLE PASSES IBM SALES

Dataquest reports 1988 sales of Apple Computers reached 1.27 million units - passing IBM Corporation's 1.23 million by a slight margin. But both firms were dwarfed by the 40% growth in Taiwanese and Korean clones of IBM's machine - totalling 4.4 million units.

## XEROX VENTURA PUBLISHER FOR MACINTOSH RUMORED

It seems that a number of corporate MIS departments have placed the Aldus Pagemaker desktop publishing program on the standard approved list based on a single factor: files are compatible between the ubiquitous IBM PC and the Apple Macintosh. Xerox has finally addressed this with a rumored August release of their immensely popular **VENTURA PUBLISHER** for the Macintosh computer. The rumor has it that files will be fully compatible between the two machines. Given the very capable postscript laser printer normally used with the MAC, this should be a marriage made in heaven. Xerox denies such rumors emphatically enough to lend them credence. Look for a late fall release however.

## CCITT V.32 GAINS GROUND AS 9600 BPS MODEM STANDARD

The CCITT V.32 standard for full duplex 9600 bps transmission has gained ground as the standard in the popular modem market. Previously, the V.32 modems started at around \$3000 due to expensive echo cancelling technology required to reliably transfer data over dial-up lines at that speed. But with the advent of a relatively inexpensive Rockwell chip set (\$250 per in quantities of 1000) CCITT V.32 seems to be taking off. Since the first of the year, at least five major modem manufacturers have announced units supporting the V.32 standard. This year shapes up to be the year of the 9600 bps modem - finally.

The industry was faced with a dilemma of awe inspiring proportions. V.32 had been beyond the reach of everyone and so almost all modem vendors developed proprietary protocols for 9600 bps

transmission. Most were some variant of the V.29 half-duplex standard with some means of pulling a quick reverse to give some two way capability - usually termed ping-ponging. To connect two locations via modem at 9600 bps, you had to have matching modem models on each end. A Microcom modem could not connect to a Multitech modem at 9600 - they could by falling back to 2400 bps, but not at 9600.

Each vendor built an ever larger installed base of users equipped with their proprietary protocol. When V.32 suddenly fell into reach pricewise, they could hardly abandon their installed base to implement the "new" V.32 protocol. But the technology was different enough that they could not upgrade their existing customers via a cheap change to some built in ROM software. V.32 was still a challenge and still almost impossible without the new chip set. They certainly couldn't afford to upgrade everyone that had earlier purchased one of their modems. So how could they implement the new technology without coming off as the bad guy?

US Robotics was the first to break the logjam. They announced that their proprietary HST technology was THE defacto standard and the V.32 was not likely to be important BUT they would offer a new model HST that did incidentally include a built in daughter-card implementing V.32. This told the existing base that they could still connect with all new HST products AND implemented the new V.32 standard so if it does become the connection between different manufacturers, US Robotics would be right there with the "Dual Standard" modem. Since the **USR HST** had become very common in the BBS world, it was an inspired formula for success.

Telebit has announced a similar product in their T2500 model currently in beta test. Telebit uses a proprietary Packetized Ensemble Protocol (PEP) that is remarkably resistant to line noise and essentially "adapts" to line quality by adjusting transfer rates in 100 bps increments rather than the usual method of cutting the rate in half. As such, the Telebit Trailblazer models have become the modem of choice around the pacific rim where line quality is notoriously poor. And the Unix UUCP network

used by Universities and small high-tech companies has adopted Telebit much as the Fidonet embraced the US Robotics model. With the T2500, Telebit also marries the V.32 mode to their existing protocol. Telebit's Manager of System Engineering Ted Brown maintains the **PEPTalk Headquarters BBS 143/1920** in the Fidonet at (408)733-3734 to support Telebit products from Mountain View California. But actually, Tony Wagner of **1st Choice Communications BBS** in Portland Oregon probably does a better good job of it. Tony operates a beta version of the T2500 as a Fidonet mail system at 105/300 at (503)292-7237. If you are curious as to whether your V.32 will connect with the Telebit implementation, you can reach one at that number. Tony also moderates a new **HIGH SPEED MODEMS** Fidonet Echomail conference appearing on BBS around the country.

Multitech has likewise wasted no time in getting right with V.32. They offer a Multitech 924EH 9600 V.32 model which also runs on Tony Wagner's **1st Choice Communications BBS** on a different line at (503)292-7233. We connected to this line with no problem using a **USR HST Dual Standard** and the action was noticeably snappy at 9600. Bill Merwin also offers a Multitech V.32 line at Huggy's Den 105/305 in Beaverton Oregon at (503)646-4312. Rumor has it that Multitech is just now offering a sysop discount program discounting their modem to around \$600 for participating sysops.

Racal Vadec is also beta testing a V.32 model. Brian Bybee of Bark Technologies operates the **Bark Base 2 BBS 105/68** up in Gresham Oregon at (503)257-3666 using a Racal Vadec 9632 VP V.32 model. We had difficulty making the connection with this modem at any speed but in some sense that's what beta test programs are all about. Mr. Bybee hints that when this modem goes into production, it will also carry a sysop discount to a competitive price in the \$600-\$700 range.

Inevitably, there will be bugs and glitches to work out before all V.32 modems really connect flawlessly at 9600 bps. But the tower of Babel that had existed among high speed modems



has for the most part been broken by V.32. And most of these manufacturers are coupling V.32 with Microcom's MNP protocol to squeeze out file transfer rates on the order of 11,000 bps. Microcom's own offering, the QX/3296c, moves data at up to 19,200 bps while their QX/V.32c purports to pump bits at an astounding 38,400 bps making it the reigning V.32 speed demon.

Telenet Corporation, the largest packet data network in the country, has announced support for the V.32 standard as well. They have announced V.32 dial-up access to their packet switch network - including the Denver area, beginning late in the third quarter of the year.

The current list prices of most of these modems seems to run about \$1500-\$1600, attractive only to the corporate market. The street price seems to be about half of that now which at \$600-\$800 still requires a pretty serious hobbyist or small business. Within a year, we predict V.32 availability for less than \$500 and two years from today, you may very likely find 9600 bps V.32 modems enjoying the "standard" position currently enjoyed by the 2400 bps modem now. More than simply increasing file transfer times, this opens the door to a host of graphic interface innovations that may completely change the face of PC Telecommunications in the future.

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## LOCAL ACCESS

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### FLIGHTSTAR INFORMATION SERVICE

The three leading general aviation aircraft manufacturers - Cessna, Piper, and Beech, manufactured over 17,000 new planes in the peak year of 1981. But increasing lawsuits led to ridiculously higher liability insurance costs and all were forced to increase prices of new aircraft by over 300%. This increase has thrown a wet blanket on the sale of new aircraft. But the reverse side of the coin is that used plane prices have skyrocketed and the market in used



### Mickey Russell - FLIGHTSTAR Information Service

aircraft has taken on a decidedly speculative flavor. Nearly a fifth of the 250,000 existing private aircraft change hands now each year.

Amex Acquisitions has cashed in on this trend through two subsidiaries. AIM Aircraft claims to be one of the largest brokers of used aircraft in the country with an inventory of over 700 planes and 1987 sales of over \$14 million. The other subsidiary, the American Aircraft Brokers Association, has sold a home study course in aircraft brokering to over 900 pilots at \$795 a pop. In January 1987, they inaugurated an on-line information service titled FLIGHTSTAR to list used aircraft for sale online.

Mickey Russell operates Flightstar Information Service at (303)790-4356. Flightstar is a "for pay" information service and in fact, Mickey seems to be quite proud of this service. A "basic" subscription will set you back \$20 monthly PLUS \$15 an hour. The minimum increment is then \$35. And it can be distressingly difficult to discern what you might receive for your \$35. You may access the system for a 10 minute

cruise, but almost everything on it is asterisked for pay subscribers only so it can be a bit difficult to tell.

Despite some amateurish misspellings, the menus of Flightstar were really quite well done. And the service does indeed seem to provide some fascinating information. They claim to have the largest database of used aircraft and parts for-sale listings in the country. The database currently lists about 620 individual aircraft for sale. And we found the listings impressively detailed with aircraft type, price, colors, condition, onboard equipment, time since major overhaul, and so forth right down to whether or not the wheels have "skirts".

The service also offers an online aircraft pricing "bluebook" database listing prices on over 800 models. This is no little text file listing models and median prices but a detailed database that included prices for pricey options such as radios and navigational equipment. The price of aircraft could be increased or decreased based on the amount of engine time above or below a bluebook average.



An aviation employment database included a very extensive salary survey listing median earnings of pilots, copilots, technical and maintenance personnel broken down by specific aircraft type. A mailing list database of over a thousand aviation employers included address, telephone, and contact information. The database of current aviation openings contained about thirty listings.

The service also provides a treasure trove of miscellaneous information including an extensive list of aircraft salvage yards, a list of current events, auctions, and shows, and a Blue Angels demonstration schedule. A list of stolen aircraft was just absolutely fascinating and Mr. Russell pointed out that you could tell which aircraft had a good load carrying capability by how common it was on this list. It seems that Cessna 206 and 402 models are popular steals because they can carry a pretty good load of cocaine across the border.

**FLIGHTSTAR** provides the best library of aviation software we've seen anywhere with navigation programs, weight and balance calculators, flight plan programs, pilot logbooks, and even air traffic control simulators. We found a demo program of a \$49 ATC simulator titled **TRACON** that provided a realistic view of an ATC radar scope. The program even drives your PC to talk through its speaker and the cheap speakers on most IBM clones actually sound like the scratchy radio voices heard over the typical aircraft radio. Just watching the screen and listening to the voices gave us new understanding of Lloyd Bridges task in the movie **AIRPLANE**.

Finally, for those who would like to write their own aircraft software, **FLIGHTSTAR** provides a listing of virtually every formula/factor useful in aviation including those required for fuel flow rates, winds, ground speed calculations, speed of sound in various temperatures, great circle distance, and long range navigation formulas.

Undoubtedly a price of \$20 monthly AND two bits per minute is just a bit proud for an online service of any type. And as a number of systems have learned, we're not at all coy about call-

ing operators to task for being a wee bit ambitious in their plucking of the online consumer without giving good value in return. But frankly, having seen the whole gamut of info available on this service, we think it is both specialized enough, and carries enough in-depth value to merit a pretty handsome wage. And while we think it would do better at either \$20 monthly OR \$0.25 per minute, we have to admit that if you are seriously involved with general aviation either as an enthusiast or as a professional, you should have access to this information and have it on a regular basis. The information provided is broad, deeply detailed, and never wavers from the stated theme of this system. Our highest recommendation and a prime example of the type of specialized information service that we think will become widespread in the future. Flightstar, USA, 7355 South Peoria Street, Hangar 10, Box 1A, Englewood, CO 80112; (303)790-2771 voice.

#### **BOULDER AMIGA USERS GROUP**

Ken Fricklas serves as sysop of a delightful system up in Boulder Colorado titled the Boulder Amiga Users Group (BAUG) BBS at (303)494-4470. The system actually runs on an IBM compatible clone using Adam Hudson's QuickBBS software. But the system is devoted to support of the Commodore Amiga machine. The BAUG group began in 1985 and currently sports between 80 and 100 members. The system offers nearly 1000 files for Amiga users occupying 45 Megabytes of storage. We were pleasantly surprised to learn that almost all of the archive utilities available on the IBM have also been ported to the Amiga - including **ARC**, **ZOO**, **PAK**, and **PKZIP**. Amiga BBS programs, communications software, programming utilities, and game software are all readily available on this system. And Mr. Fricklas indicates that he believes that Amiga shareware garners twice the registration levels of IBM programs on a percentage basis.

#### **RADIO FREQUENCY DATABASE ONLINE**

We found **NCC 1701 THE ENTERPRISE BOARD** to be back in operation at (303)377-1005. This is a very adept Apple II based BBS with 3/12/2400 bps capability that operates with a very strong **Star Trek** theme. This system used to be run by Jim Starke and we assume he is responsible for its return at this new number.

Of course, the **Star Trek** theme is nice but it's one of those things that has been done so much it's lost its impact. But we found something "down in engineering" that you mae wanna ave a look ah't Cap'n. The system carries the most extensive list of Denver area radio frequencies we've seen anywhere. Nothing like it in the world. The "engineering" section has an extensive menu of frequency "types" such as AM Radio Stations, FM Radio Stations, Metropolitan Services Scanner Lists, Federal Government Scanner lists, HAM repeater frequencies, private security firm frequencies, hospital frequencies, every possible local aircraft frequency including Stapleton Tower, North approach, and literally every aviation frequency of any interest to anyone in the state of Colorado with a hang glider and a walkie talkie. You can find out what frequency to listen in to the FBI or the VA Hospital. A man with a scanner and this data might never be heard from again. If nothing else, we found the list of Denver FM radio stations and their frequencies to be useful.

The system is laid out very cleanly, with a noticeably snappy response. It operates by virtue of a program titled **Protree Elite** running on an Apple II computer. Notably interesting. Ensign - Engage.

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#### **LONG DISTANCE USA**

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#### **WEATHERSTAR PILOT BRIEFING SERVICE**

Haynes Environmental Systems of Minneapolis Minnesota operates a fascinating and useful service for pilots that appears to be entirely free of



charge. The service is titled **WeatherStar Weathermation** and operates at (612)296-5426 using the normal 8N1 communications parameters. The service requires no logon, registration, or any other curriculum vitae normally required of callers to most systems. Once you have made the connection, simply enter **HELP** for a complete list of commands.

Once you've received the list of commands, you may still be a little confused. But most pilots will immediately feel at home. WeatherStar does indeed provide weather information. But it is largely in a type of vowel-less shorthand common to early hebrew texts, modern naval radio communications, and of course, pilots.

What we were able to decipher led us to believe that the weather was more trouble than it was worth in this shorthand format despite a variety of area and terminal forecasts available. But WeatherStar provides some other information we found fascinating. For example, it allows you to calculate a preliminary flight plan by entering the three-character abbreviation used to identify all airports in the US. You could also add flight speed. For example: **PFP/150 DEN STL** would be the correct command for a 150 mph flight from Denver (**DEN**) to St. Louis (**STL**). The resulting display tells us that our true course would be 90.6 degrees, distance is 676.6 nautical miles, and our trip would take 4.5 hours. Likewise, **PFP/150 DEN LAX** results in the information that Los Angeles International lies at 245.9 degrees of compass 736.6 nautical miles distant and it would require 4.9 hours of travel time. The response in this calculation is almost instant.

You can also find out a great deal about airports in general and in your destination in some detail using the **INFORMATION (IN)** command. By entering **IN DEN** you will receive a screen fully of data including airport name (**Stapleton International**), manager's name (**George Doughty**), mailing address (**Stapleton International, Denver, CO 80207**), telephone ((**303**)398-3844), altitude (**5333 feet**), latitude (**39 46.4 N**), longitude (**104 52.7 W**), magnetic deviation (**11E**), radio frequen-

cies, and other general information regarding availability of fuel, repair facilities, and how many counter stools are available in the coffee shop.

If you have any interest in aviation/navigation, this system is a winner. Haynes Environmental Systems, 6300 34th Ave. South, Minneapolis, MN 55450; (612)727-1084 voice.

### IBM USER GROUP SUPPORT BBS

International Business Machines has finally joined the ranks of serious BBS enthusiasts with their **IBM National Support Center PC User Group Support BBS** operating at (404)988-2790. The service has been in operation since the first of the year on an eight-line PCBoard system. It runs on a series of **PS2 Model 60** computers using the **Hayes 9600 V-Series** modems for 300/1200/2400/9600 bps operation.

Steve Mark is the manager of the IBM National Support Center and Mike Austin works as the actual day-to-day sysop of the system. The system features a disappointing library of download software but its primary purpose is to support user groups around the country. It did provide the text of some user group newsletters in one file area. Essentially, this provides an exchange service so that any user group can use articles from other user group newsletters - a fascinating idea to support local groups. The groups can then put together a really informative and interesting newsletter without it becoming a full time job for some hapless individual elected "editor" while they were in the restroom.

The service also provides a database of user groups that you can access by entering the area code or zip code for your area. We were enormously disappointed to learn that area 303 has only one user group and it is up in Fort Collins. This database is obviously the successor to the old **IBM PC USER GROUP LOCATOR** automated voice system.

The IBM User Group support BBS is a fantastic idea and IBM can provide the leadership and forum to develop a na-

tional listing of user groups. But the user groups themselves must support the concept to make it effective. If all the PC user groups in the country would submit entries into the database and upload their newsletters with permission for other groups to use the articles, this system could become a national resource. We urge the many local Colorado user groups to enter and maintain data concerning their clubs to the IBM User Group Support BBS.

### CHANNEL 1: NEW ENGLAND MEGABOARD

by David Hakala  
**Channel 1 Communication(tm)** (617)354-8873 boasts 20 dial-up lines, over 20,000 download files for IBM, Mac and Amiga buffers, 75 national & local Conferences, and online shopping/ordering. Running under PCBoard Multi-node software on a Novell network, the system claims 8,000 regular users and some 1,200 calls per day; not bad for a BBS that just started up in October, 1986.

Tess Heder, a registered architect and the "day-sitter" for **Channel 1**, tells us Brian Miller and she began **Channel 1** out of economic necessity: their BBS phone bill was starting to look like a mortgage payment. Miller, "a practicing psychotherapist and computer technician" (two things EVERY modem-maniac needs), proposed a two-node BBS as a way of "reversing the charges."

We suspect many boards begin this way. But Heder and Miller made an early commitment to making the board pay its operating expenses as well as saving them toll charges. **Channel 1** earns money from online ads sold to businesses, multiple-user passwords for corporate clients, turnkey leasing and management of product support conferences, BBS design/installation services, product sales, & shareware mail-orders.

**Channel 1** is a fine case study in infopreneuring. No user access fees were required to build this capital-intensive board. Heder and Miller simply carved out a significant market segment, sold access to it to customer-hungry business



clients, and charged competitive prices for valuable services most sysops routinely give away.

There are sysops in Denver earning \$50 per hour setting up simple E-mail boards for corporate clients, but they are a silent minority. The average sysop chronically bemoans his lack of capital whilst sitting on a treasure trove of marketable talent. Anyone committed to the future of grassroots BBSing would do well to call **Channel 1** for mentoring.

A megaboard is not maintained by two people alone. Heder and Miller have attracted expert help by demonstrating they are serious about infopreneuring. Thom Little, author of the shareware program ACPC, chairs the Programmers, Microsoft and Shareware Support Conferences. David Whitehorn of the Harvard Business School lends support to the ever-changing development of Channel 1's architecture. Other conference moderators include Fred Hapgood (Science), David Dipperstein (Online), Jon Wolf (Amiga) and Karen Rockow (Cuisine).

The system has 2.2 Gigabytes of online storage, more than enough to provide indepth offerings for every taste. We already mentioned the 75 Conferences. Gamesters will find nearly 30 interactive games, from multiplayer Trade Wars (versions 1 & 2) to trivia and a blackjack session in which one may win (or lose) access time. The download files are well organized into 48 sub-directories, ranging from online news and bulletins to application programs and graphics/printer font libraries. The Doors section gives access to extended protocols, info/data base programs, Qwickmail and trading Doors.

Effective this May, **Channel 1** has introduced a pilot program of user access fees. Free access to online shopping and Conferences is still available to non-members. An introductory membership includes 30 minutes per day full access for six months and 150 file downloads for \$25.00. Six-month full memberships allow 250 downloads and cost \$32.50 or \$40.00 for 45 minutes or 60 minutes of daily access. One-year memberships include 500 downloads for \$60.00 or \$75.00 45/60 minutes. Multi-

ple-user corporate passwords are available at \$50.00 or \$150.00, with commensurately higher download and access privileges.

**Channel 1** accepts online orders for products or memberships with American Express, Visa and Master Card. The system is PC-Pursuit-able via MABOS/354-8873. **Channel 1 Communications(tm)/Brian Miller:** P. O. Box 338, Cambridge MA 02238-0338. Voice: (617)864-0741. Data: (617)354-8873 1200/2400 bps; (617)354-3137 USR HST 9600 bps; (617)354-5776 Hayes V-9600; (617)354-6155 Microcom 9600.

### SUN MICROSYSTEMS TOPS BBS

The **TOPS** local area network has gained something of a following among those who need to link Macintosh and IBM computers together. The system links the Macs using the built in AppleTalk connectors and the IBMs via an add-on circuit card termed a **Flashcard**. The product includes utilities to convert various Macintosh file formats to IBM and vice versa.

The product developed such a following that it caught the eye of engineering workstation developer **Sun Microsystems** of Alameda California. They bought **TOPS** outright and now market the product themselves. They also operate a very interesting online support service at (415)769-8874 using TBBS software on an IBM compatible machine.

The service provides spec sheets for various **TOPS** products including Flashcards, **TOPS/DOS 2.1** software, terminators, and devices to connect Apple Laserwriters directly to a network. They also carry application notes on such subjects as gatewaying your **TOPS** net to a Novell network, using **TOPS** with Desqview and so on. Finally, any press releases issued by the company are available online. We learned, for example, that there will be a **TOPS Connectivity Clinic** held here in Denver this coming August 14.

### POPULAR MECHANICS MAGAZINE ONLINE SERVICE

**Popular Mechanics Magazine** has been around for many years providing home owners and hobbyists with guidance on radio and television technology, home projects, new technology, and plenty of good old "how to" around the house. We've got a number of treasured issues from the early thirties as interesting as their current offerings - and some of the "new products" of the early thirties bear a remarkable similarity to "new products" today.

**Popular Mechanics** has entered the future in a big way these days with their own online information service at (212)582-8369. The system runs some peculiar BBS software we were unable to identify and offers no file area, back issues or anything along those lines. It does, however, feature some message areas that contain a wealth of information - far beyond the typical BBS message area.

The key to this is direct participation by the editorial staff. When you logon to PM's system, you're first greeted with a welcome statement and editorial introduction to the current print issue by Joe Oldham, Editor-In-Chief of the magazine. Message areas for Automotive Technology, Home and Shop, Electronics and Photography, and Science and Technology are full of informational tidbits. And well they should be. Apparently, the editors in charge of those departments in the magazine are actively moderating the corresponding message area on the system.

We found some pretty interesting info on Space Station, Cold Fusion, and a planned Manned Mars Mission in the Science and Technology section. Home and Shop had some really good stuff on where to get parts for different appliance makes including a series of dealer locator numbers; some good info on cordless drills (to clutch or not to clutch); a tabular listing of the cost per million BTUs for electricity, natural gas, kerosene, heating oil, etc.; and a discussion of what Craftsman tools are still made in the US and why Sears has



become so schlocky about replacing things and shuttling customers from one department to another.

Bob Villa has been very popular as the star of **WGBH TV Boston's** production of **THIS OLD HOUSE**. Bob apparently does a column for PM as well and we read some interesting debate about his current difficulties with the show's producers. It seems **WGBH** is a bit miffed at Bob for endorsing some building products and they feel there is some conflict of interest there. It looks like **THIS OLD HOUSE** will continue - but with a new host.

This system should serve as a valuable feedback mechanism for PM readers to drop a line to the editor of their favorite department telling them what they're doing right and conversely, what they would like to see more of. As use of BBS and online service technology gradually emerges from the dim twilight world of the technoid to the light of normal humanoid use, we predict you'll see more print publications tied with online services to good result. Excellent Service.

### ONLINE CREDIT REPORTING SERVICE

Freeman and Associates of Gailbraith Ohio is marketing a very interesting and somewhat attractive service titled the **NATIONAL CREDIT INFORMATION NETWORK**. The service purports to provide access to a number of different credit and information agencies to allow you to screen credit applicants or prospective employees. The service seems priced specifically to be attractive to small businesses.

We perused their free demo line at (800)541-4514. To access this, dial the number using the usual 8N1 parameters. On connect, press the **ENTER** key slowly four times in succession. At the **USERNAME:** prompt, enter **DECK7** and press the **ENTER** key again. Follow the prompts to enter your name, address, and so forth. A demo without "live" data is provided and they follow up with a mailer describing some services in more detail.

Frankly, we were shocked at what you can find out about someone online. Your driving record is available for all to view for anyone in any of 49 states with Massachusetts the lone holdout. This requires a charge that varies by state and usually takes 24 hours.

A Social Security Number Trace feature allows you to enter a social security number to find out virtually every place the owner has ever lived since the SSN was assigned including his current address. They estimate an 82% "hit rate" for this service.

Consumer credit reports are available at a cost of \$3.80 to \$15 depending on the credit bureau accessed. Commercial credit reports on companies range from \$6 to \$39. There is a \$10 monthly minimum fee and to sign on costs a persuasive \$398. No mention of the \$10 monthly minimum or the \$398 initiation fee was mentioned online and the \$398 fee was literally buried in the fine print in their promotional literature. They do NOT seem proud of this feature although we're pretty sure they are set on getting it before you access any live data. Further, you must "qualify" for access to the consumer credit area due to Federal laws regulating who may access consumer credit reports, but the criteria looks pretty loose.

While we have mixed feelings about this service, it could certainly prove a boon to a small business in need of such information. Freeman and Associates, 3193 West Galbraith, Cincinnati, OH 45239; (513)741-8036 voice.

### DENVER BACKPEDALS ON SALES TAX FOR ONLINE AND DP SERVICES; NEW RULES OPEN FOR COMMENT

by David Hakala

Last month, we reported new regulations issued by Denver's Dept. of Revenue to "clarify" the city's sales tax law affecting DP equipment, programs and services, as well as "informational or entertainment service(s)," including subscription bulletin board systems. The new rules (four years in the writing), classified computer maintenance contracts as "data processing programs" and asserted that computer time purchased and resold could be used twice,

therefore was subject to double taxation. Exemptions for broadcast media and other formidable special interests further contributed to a regulatory cryptogram.

The new regulations were issued April 18; the process of rescinding them had begun by May 22. Alan N. Charnes, Manager of Revenue, says in a letter: "In response to a number of concerns raised by businesses affected by the Rules, we have decided to request additional comments and recommendations from anyone interested in this subject... submit any suggestions you have as to how the Rules can be improved so as to more clearly and more simply address the requirements of the law."

Apparently, the tax collectors still do not think the City Council includes "anyone interested in this subject." I asked Freda Miklin, Tax Compliance Manager, whether her department planned to consult with Council members before further clarifying their intent. She said "No," and repeated her earlier opinion that the members who were incumbent in 1981 when the sales tax law was revised probably would not remember their intent at the time.

The Revenue Department never consults the Council when interpreting city ordinances. In this case, the revenueurs consulted only the City Attorney, who delegated a junior attorney to the matter, who in turn consulted only laws and court cases from other jurisdictions to come up with the abandoned verbiage. No one who knows MS-DOS from Muzak was consulted at any time during the four years of research.

Bill Scheitler, Councilmember for District 1, indicated that a tax regulation affecting such a broad segment of the local economy would be a matter of interest to the Budget & Finance committee, if not to the entire Council. He expressed concern that a 1981 law was just now being "clarified," and promised to look into the Revenue Department. Notice of the rescission will be published in the Rocky Mountain News in the near future, along with a request for public comment on appropriate definitions and applications of the law. Miklin made a point of asking for "constructive suggestions," not let-



# MICROLINK B

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DESIGNED AND OPERATED FOR THE SERIOUS BBS USER

## WHAT IS MICROLINK B?

Microlink B is the largest electronic Bulletin Board System (BBS) in the area, specializing in files and message services for the IBM-PC, XT, AT and compatible systems.

Microlink B has been serving the BBSing community since 1985 with quality public domain and shareware software, as well as interesting and informative message areas covering a variety of topics.

## FILES, FILES AND MORE FILES

Your membership to Microlink B gives you immediate access to thousands and thousands of files that you can download directly to your computer. There are presently over 31,000 individual files available, and we are continuously expanding our collection. You can have everything from games to statistical calculation packages, database programs to personal finance managers, programmer's aids to computer communications utilities. Put simply, we have one of the most extensive software collections for the IBM-PC and compatibles in the country.

There's more... Microlink B maintains the complete 1,000 disk PC-SIG software library available on-line for our members. We think you'll agree that the PC-SIG library is one of the most comprehensive software collections available for the PC.

We do not provide software for the Mac, Amiga, or other non-IBM compatible machines. Why? Because we think it's better to put all our effort into providing you with the best possible software collection for your IBM-PC or compatible system.

## TALK, TALK, TALK

We do messages too. The Microlink B message base is connected to the world via the FidoNet public amateur network. We 'echo' many of our message areas to other FidoNet systems in the area, across the country, and around the world. This means you can ask a question on Microlink B, and

receive answers from experts all over the world.

We have message bases covering a variety of interesting topics from programming and technical issues to law, from aviation to using Lotus-123. And, yes, we do offer private E-MAIL message areas where you can leave confidential messages and files for other Microlink B members.

Microlink B also offers USA Today's Decisionline, a computerized version of the popular USA Today newspaper. Decisionline is updated early every weekday morning.

## WHAT YOU NEED

To access Microlink B, you'll need an IBM-PC or compatible computer and a modem capable of operating at 1200, 2400 or 9600(HST) baud, as well as one of the many communications software packages that are freely available.

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You can call Microlink B anytime to take a test drive. Set your communications program for 8 data bits, no parity and one stop bit (refer to instructions for your modem or communications software). Dial Microlink B at (303)-972-9600. Microlink B will ask for your full name, and then guide you along the way with easy to follow menus. You'll be able to tour the system, read messages, and look over our software collection.

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Registration Form Microlink B (303) 972-9600

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\_\_\_\_ Check Enclosed    \_\_\_\_ Visa    \_\_\_\_ MasterCard

Credit Card # \_\_\_\_\_

Expiration Date \_\_\_\_\_

Signature \_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

Telephone(\_\_\_\_) \_\_\_\_\_

Name you will use for BBS Logon

First \_\_\_\_\_ Last \_\_\_\_\_

Password \_\_\_\_\_



ters saying the tax is a bad idea. Comments may be addressed to Charnes or Miklin at The City and County of Denver, Dept. of Revenue: Room 300, 144 W. Colfax Ave., Denver CO 80202. Voice phone number:(303)575-2262.

### SOME "CONSTRUCTIVE SUGGESTIONS"ON DP SALES TAXES

by David Hakala

I utterly exhausted my supply of journalistic objectivity while reporting on this subject in the June issue. What follows is a blatant call for rebellion, subversion and general caterwauling:

Taxing authorities tell us the service sector enjoys an "unfair advantage" over sellers of tangible personal property. Who are they kidding? We know who pays the tax. The Denver City Council and its Revenue Department are not out to "level the playing field" between manufacturers and service providers. They are out to further level your pocketbook and mine!

Denver is the first county in the metro area to impose sales tax on DP services. If it succeeds, other counties will rush to glut themselves at the new trough. The State will stick its fingers deeper up your pocket. The "special tax districts" cropping up like weeds will get their unearned share. You may already be paying for a transit corridor study or symphony orchestra you don't need or want; what's next?

The list of taxable services will grow, and your purchasing power will dramatically shrink. Expenditures for services, especially DP-related, are growing faster than any other spending category. Sales taxes are no longer deductible; we now pay taxes on money already taken by taxes!

The stated goal of revenueurs is to tax ALL services. They would have us believe it is inevitable, even "fair." It is neither; it is overweening parasitic greed. Let us send a message to Denver, the surrounding counties, and the state that says, "Enough already!"

If you buy services in Denver now, look for ways to shift your point of receipt outside the city limits. Take your computer to Littleton for repair, or at least minimize the tax by insisting on separate billing for parts and labor (labor is currently untaxed). Change your legal place of business to another town. Many small companies have only mail boxes in their official tax districts. Consider moving DP operations out of Denver until its arrogant leaders cry "Uncle!" Why remain in the biggest tax-trap along the Front Range, when markedly better business climates exist ten minutes away?

If you sell DP services of any kind, make your Denver customers accept delivery outside the county limits. Denver proper holds less than half the population of the five-county metro area, and is falling ever farther behind. I find my business doesn't need Denver; does yours?

"Informational or entertainment services," including bulletin board systems, enjoy the greatest flexibility in choosing their markets. A dial-up service need only request a formal "point of delivery" address on a subscription form, and refuse to accept applications listing Denver addresses. According to Miklin, the chief enforcer, you are not liable for false statements, since you cannot verify the origin of each incoming call.

The very least any fed-up taxpayer should do is let the Department of Revenue and the City Council know ENOUGH IS ENOUGH! Here are the names and phone numbers of Council members:

### TAXES TAXES EVERYWHERE

This month, David Hakala continues his coverage of Denver's Department of Revenue and their attempt to stumble into the future with the best possible stranglehold on high-tech businesses they can manage. That they are doing so without any supervision by elected officials or grasp of the technical and logistical issues involved is not too surprising. But it bears examination.

### DENVER CITY COUNCIL

Wm. A. (Bill) Scheider, Dist. 1:	575-2172 *
F. J. (Ted) Hackworth, Dist. 2:	922-7181 *
Ramona Martinez, Dist. 3:	922-7755
Stephanie A. Foote, Dist. 4:	692-8929
Paul L. Swalm, Dist. 5:	399-5607
Mary A. DeGroot, Dist. 6:	871-0601
Dave Doering, Dist. 7:	575-2023
Hiawatha Davis Jr., Dist. 8:	298-7641
Deborah L. Ortega, Dist. 9:	458-8960
Cathy Donohue, Dist. 10:	575-2918 *
Wm. R. Roberts, Dist. 13:	377-2372 *
Robert L. Crider, Council at Large:	575-3561 *
Cathy Reynolds, Council at Large:	575-3012 *

\* Asterisks indicate Council members who were incumbent in 1981, when the sales and use tax laws were revised to include DP-related sales.

Jacob Javits began his tax-payers rebellion in the late seventies in Southern California with a "Proposition 13" amendment to the constitution essentially restricting the annual property tax to a fixed percentage of home value. The politicians and special interest groups of California en masse mounted an enraged campaign to discredit the proposition including horrifying personal attacks on the proponents and horrendous television ads with raped women, uneducated children, streets in disrepair, and generally predictions of the end of civilization as we know it. The local citizens were not dissuaded. They were paying unreasonable housing costs and needed relief. Proposition 13 passed. For years afterward, anytime anyone wanted anything from the government, officials bleated piteously about their plight under the shadow of 13. Today, California is doing fine. As I understand it, they have a \$2 billion surplus.

Missouri and several other states followed suit to endless success all around. In each case, those empowered to manage the funds screamed at the top of their lungs that we would all go to hell if their funds were reduced. On passage, they used our money to file endless court petitions, suits, and briefs in an attempt to "clarify" what the people "real-



ly meant" by the overwhelming passage of these tax limitation amendments. Despite this, in virtually all cases, the amendments have been a rousing success once they were passed.

Ronald Reagan clarified the peoples intent most persuasively and specifically on the matter of taxes during both the 1980 and 1984 presidential election. No political candidate of any intellect has breathed a word about raising taxes since and we doubt you will see much of it in the future. Rather, we have a new game which centers around "broadening the tax base". This conveys the message that all of us that are paying taxes are ok, but we are going to get "the other guy" to pay "his fair share as well". And best of all, we will do it without raising taxes actually. Rather, we will let career civil service employees "clarify the rules" a bit to garner more income from the same old tax laws by interpreting them differently.

Florida had a recent experience with placing a tax on services and specifically advertising. It failed so miserably we thought the concept dead. Now, as if it came to them in a dream, Denver has decided to disqualify itself from participation in the twenty-first century by persuading anyone with an idea and a computer that they should take their business to another city or state to prevent being taxed to death right here. This would be considered something less than brilliant planning if it were planning at all. But it is actually a middle-aged babe with a telephone down at city hall in a civil service position who has decided all this. And quite likely the elected officials are completely aware of it but perhaps if they cower behind the drapes, it will all come to pass without their direct blessing - though still providing them temporarily with extra funds to play Santa Claus within their districts.

Of larger concern to us all is the recent assault on the United States Constitution by our national congress. It seems that there is some powerful sentiment for the collection of state sales taxes by mail order companies. Note that our constitution specifically bars any taxation or restraint of interstate trade and does so in pretty unequivocal terms.

Still, they are dancing about with a bill to force mail order merchants to collect and forward state sales taxes.

This is ludicrous. Aside from the constitutional questions, it would be very difficult for the companies to implement. There are not only state sales taxes, but local ones as well. We recently received an upgrade notice from Ashton Tate for a Multimate package we use. The upgrade was only \$65 but Ashton-Tate, of Torrance California, demanded a 7.1% Colorado state sales tax from us. This is simple thievery. There is no 7.1% Colorado state sales tax. In fact, state AND local sales taxes in southern Jefferson county total 4.1%. In Lakewood they are in excess of 7% and they vary throughout the state. The actual state sales tax is 3.1%. In Colorado, you pay sales tax at the location where you take delivery. Where ever Ashton Tate may have an office in Colorado is mute (if they do have one at all). The product ships from Torrance to our address in unincorporated Jefferson county. If they needed to collect sales tax at all, it should be 4.1%.

Another example of this bizarre situation is CompuAdd. CompuAdd is one of the largest and most successful mail order vendors of computer equipment in the country. Their prices are very modest and the quality seems "good" if not exactly superb. They are based in Texas. Recently they opened a retail store in Aurora Colorado. I don't live in Aurora. I don't even VISIT Aurora if there is any way out of it. But if I call their mail order office in Texas to order something, they add a Colorado sales tax to it (or they would have if I hadn't cancelled the order and hung up). They do this because they recently opened this store in Aurora. Before the store - no sales tax.

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## EDITOR'S NOTES

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The Regional Bell Operating Companies and a number of would be "networks" have developed a fascinating new game. It's called **INFORMATION GATEWAY**. Essentially, you grab some information, mark it up 300% and pass it on. The game assumes

that the data hungry public will pay the freight no matter how much it costs just to access characters on the screen. They charge the individuals who create and organize information for the privilege of being on their network and then charge the public for access to these information providers. Now, we are seeing this "stack up" even further. Minitel Services Company for example, is striving to place itself between the regional bells and the information providers to take a cut of their own.

All of this insanity flies directly in the face of current reality. Experienced long term services such as **THE SOURCE** and **COMPUSERVE** are struggling ardously just to make payroll and no one has really ever suggested that their services were not valuable or not worthwhile - a tad slow at times - but everyone likes using them. The problem is - no one likes paying for them and especially not on the clock.

Online services catering to businesses can draw the \$100 hourly access fee if they do truly offer information businesses can turn into cash or strategic advantage. The price is paid out of the advantage itself. Tapping the consumer market is an entirely different kettle of fish. The American public is quite accustomed to having information delivered to their door largely at the expense of the advertising business world. Newspapers are still less than fifty cents a pop. Beautiful color magazines of several hundred pages are about \$3 to \$4. Try Smithsonian Magazine sometime - it's even better than Boardwatch. It's loaded with in-depth articles of twelve to fifteen pages with striking color photographs and editorial matter written by literate, bright people on a potpourri of subjects that brings surprise and delight with each issue. It's \$3. If we told you that you could read Time magazine off the newsstand for a \$29 sign-up fee and \$12 hourly, you would not likely provide us with a printable response. Once the novelty had worn off, you would be about as disinclined to pay the same rate for it online. Yet online services are typically demanding just this type of pricing for editorial matter that in many cases is not up to the rigorous standards of your typical street gang's drug marketing newsletter.



The Sears/IBM team has poured over \$700 million dollars down the Prodigy rathole to date. In mid-May, just as they rolled out their New York offering of Prodigy, it came to light that the IBM supplied software driving the entire thing was having a bit of a problem that essentially shut the net down for four days. This would not normally be considered a "power play" of IBM's advertising dollar. But at least the Prodigy product has taken the public off the clock with a rational, administrable flat-rate pricing system of essentially \$10 monthly. It may well fail because it is shallow, slow, and technologically pathetic. But the pricing idea is obviously attractive. They've signed up thousands for their starter kit - it is supposed to be a best seller at Egghead software. When we looked six months ago during the rollout in California it looked to be a wee bit weak in the knees. We'll reserve judgement until we've had a chance to play with the Denver rollout and see how it works now.

The future in online publishing is \$25-\$60 annual subscriptions to information services offering specialty publications such as Fly Fishing Online, Maudes Mushroom and Morrell Database, Gerry's Complete Online Database of Volkswagen Piece Parts, Harry's Hot Air Ballooning Online Forum, and Don's Dandy Dog Recipe Emporium and Online Information Service. The technology will spawn a cottage industry of niche publishers. A few will become wealthy. Many will make a good living. But none of them will convince the American public to pay \$12 hourly for anything. And while some larger general services will undoubtedly survive by offering a smorgasborg of the work of their more creative wee brethren, we don't think they will wean your average American Consumer of \$60 or \$70 in monthly online connect charges. It just isn't the way we price consumer information in our society. Remember where you heard it first.

The best thing the RBOC's can do is team up with a local newspaper, put the paper online and their directory services online. Drop the idea of gleaning \$3 per hour for themselves out of all of this. It



Editor Jack Rickard with Learjet - Dream on Norm!

won't happen for now. The local paper and directory assistance (at little or no cost) will draw the American consumer to modems, computers, and so forth. This will in the long term create tremendous demand for added telephone services (including second lines almost immediately), ISDN, data services, calling party identification, and so forth returning the telco investment hundreds of times over. Their insistence that services that cannot garner \$3 an hour alone can somehow draw \$6 once the telephone company "helps them" (\$3 for the IP and \$3 for the telco) are the unrealistic result of too many pie-in-the-sky three gin lunches.

We don't do "theme" issues as many of the larger computer magazines do with "printer issues" and "LAN issues" and so forth. But in researching online services, often one layer of the onion gives

way to reveal yet a juicier layer underneath. Looking over the stories in this issue, it would seem to be our "aviation issue" this month. Between Haynes Environments Weatheration service in Minneapolis, and the FLIGHTSTAR Information Service hear in Englewood, we've uncovered a beehive of online activity of interest to general aviation enthusiasts. That's a Learjet 55B I'm posing with. All of us BIG TIME NEWSLETTER EDITORS have one of these you know. Right.....

Stay Connected.

Jack Rickard  
Editor



# BOARDWATCH MAGAZINE

NATIONAL LIST OF ELECTRONIC BULLETIN BOARD SYSTEMS AND ON-LINE INFORMATION SERVICES - JULY 1989

SERVICE	PHONE	DESCRIPTION	SPONSOR/SYSOP	LOCATION
ADA Information Clearinghouse	(202)694-0215	Information on ADA Programming Language/Military Specs	Department of Defense	Washington, D.C.
ANARC BBS	(309)688-0604	World Radio/TV Handbook - Short Wave Freq Lists/Scheds.	Assoc. of North American Radio Clubs	Peoria, IL
Ashton-Tate Technical Support	(213)538-6196	dBase and Multimate Software Support System	Ashton-Tate Corporation	Torrance, CA
AST Technical Services BBS	(714)852-1872	Superb support system for AST Computer Products	AST Research Inc.	Irvine, CA
AT&T Support BBS	(201)769-6397	Support for PC 6300 and other AT&T PC Models	American Telephone/Telegraph PC Division	Plainfield, NJ
BBS Press Service	(913)478-9239	Home of INFOMAT Online Weekly PC News Magazine	Alan Bechtold/BBS Press Service	Topeka, KS
Big Peach BBS	(404)446-6650	Home of Automenu and Treeview Software	Marshall Magee/Magee Enterprises	Norcross, GA
Big Sky Telegraph	(405)683-7680	Educational Plans/Services to Rural Montana Schools	Montanna Rural Education Network	Dillon, MT
Boston Citinet	(617)439-5699	City of Boston Information Service - Advertising Supported	Advanced Videotext Systems	Boston, MA
Brown Bag Software BBS	(408)371-7654	Power Menu/ PC Outline Software Support	Brown Bag Software	Campbell, CA
ButtonWare BBS	(206)454-2629	PC-File dB / PC-Calc / PC-Type Software Support	Jim Button/ButtonWare	Bellevue, WA
C.A.R.L. Library Service	(303)830-1165	Citations to 2 Million Texts in Colorado Library System FREE	Colorado Alliance of Research Libraries	Denver, CO
Canada Remote Systems	(416)232-0442	Probably Canada's largest BBS/Online Information Service	Jud Newell	Toronto, Ontario
Cathouse BBS 206/2901	(805)395-0650	Multiline Support System for Wildcat BBS Software	Mustang Software	Bakersfield, CA
Census Bureau Office Automation	(301)763-4576	Microcomputers and Office Automation	US Dept. of Commerce/Nevis Frankel	Suitland, MD
Census Bureau Personnel Division	(301)763-4574	Employment Opportunities Within the Census Bureau	US Dept. of Commerce/Nevis Frankel	Suitland, MD
Channel 1	(617)354-5776	Twenty-line New England PCBoard System	Brian Miller/Tess Heder	Cambridge, MA
Classl Computer Fieds	(317)359-5199	Online System for Classified Advertisements	Steve Edsall/Trader	Indianapolis, IN
Clean Air BBS	(408)298-4277	Environmental Health/Cigarette Smoking Topics	American Lung Association/ Sheila Blash	San Jose, CA
Cleveland Freenet	(216)368-3888	Cleveland City Information/Ohio Governor's Office Online	Case Western University/AT&T/Ohio Bell	Cleveland, OH
Computer Business Services	(714)396-0014	Computer Columnist John C. Dvorak's office BBS	John C. Dvorak and Nick Anis Jr.	Diamond Bar, CA
Computing Canada Online	(416)497-5263	Adjunct to Excellent Canadian PC Newspaper	Computing Canada Newspaper	Willowdale, Ontario
Dante Project BBS	(603)643-6310	Commentary/Research on Dante's Divina Comedia	Dartmouth College	Hanover, NH
Economic Bulletin Board	(202)566-4602	Economic Statistics/GNP/GPI/Labor Data	US Department of Commerce/Ken Rogers	Washington, D.C.
ELISA II	(202)697-3832	Export License Status Advisor - Technology Export Issues	Defense Technology Security Admin.	Washington, D.C.
Energy Info Admin E-Publications	(202)586-8658	Variety of Petroleum/Coal/Electricity Energy Statistics	US Department of Energy	Washington, D.C.
Event Horizons	(503)777-1578	Digitized Graphics Image Library	Jim Maxey	Portland, OR
EXEC-PC	(414)964-5160	Largest BBS in US - 90 Lines - 70,000 files - 4 Gigabytes	Bob Mahoney	Shorewood, WI
Family Radio Forum Headquarters	(415)562-5483	Center for Nationwide Network of Family/Christian BBS	Federal Communications Commission	Oakland, CA
FCC Public Access Link	(301)725-1072	Equipment Authorization Status Advisory Service	R. Campbell and L. Rudolph	Columbia, MD
Federal Deposit Insurance Corp.	(202)737-7264	General Microcomputer Information	US Office of Personnel Management	Washington, D.C.
Federal Job Information Center	(313)226-4423	Federal Job Opportunity Lists available online	Federal Library Information Network	Detroit, MI
FEDLINK ALIX	(202)287-9656	Info on Federal Libraries - Excerpts Library of Congress News	John Friel III	Washington, D.C.
Forbin Project, The	(319)233-6157	Home of QModem SST Communications Software	US General Accounting Office/Sheryl Lee	Cedar Falls, IA
Global Seismology Online Service	(202)275-1050	Lotus/dBase/Word Perfect User Tips	US Geological Survey	Washington, D.C.
Greenpeace Environet	(303)279-6374	Earthquake Epicenter Data - Geomagnetism NEIS/QED	Dick Dillman/Greenpeace	Boulder, CO
GT PowerComm BBS	(415)861-6503	Ecological and Peace Issues - Disarmament/Toxics/Wildlife	Paul Meiners/P&M Software	Houston, TX
Hay Locator	(713)772-2090	Home of GT Power Communications Software	Purdue Univ. Agricultural Computer Net	Norcross, GA
Hayes Advanced Systems Support	(317)494-6643	Database of Hay/Straw Suppliers and Buyers	Hayes Microcomputer Products	Atlanta, GA
IBM Users Group Support BBS	(800)US-HAYES	Eight Line Hayes Modem Support BBS	IBM National Support Center	Hamilton, Ontario
Info-Source Canada	(404)988-2790	IBM PC User Groups Database - Newsletter Exchange	Eric Feistman/ll	Washington, D.C.
Information Resources Services	(416)574-1313	Online publications	General Services Administration	Hillsborough, OR
Intel Support BBS	(202)535-7661	Fed Micro Procurement Rpts. - List of Banned Contractors	Intel Corporation PCOE Division	Boise, ID
IRS Tax Practitioner BBS	(503)645-6275	Support for Intel PC Products - Inboard 386/AboveBoard 286	Internal Revenue Service - Boise Office	Arlington, VA
JAG-NET	(208)334-1763	Income Tax Information - Questions Answered in 48 Hours	Alpha Systems Inc./Bill Griffin	Roswell, GA
JOBBBS	(202)325-0748	Navy Judge Advocate General's Information Network	Curtis Abru/MCI Telecommunications Inc.	Raleigh, NC
MCI Consultants Support BBS	(404)992-8937	Online Job Listings - 2186 Technical Pos. - 10,000 Corps.	Mike Stroud	Redmond, WA
Micro Message Service	(800)873-5548	Long Distance Rates/Technical Advice for Comm Consultants	Microim Corporation	Redmond, WA
Microim Technical Support BBS	(919)779-6674	USA Today/Newsbytes/Boxoffice Magazines - 400+MB Downloads		
	(206)881-8119	Support for Popular R-Base Relational Data Base System		



NANci BBS	(202)475-1973	Online Version of Naval Aviation News Magazine	Naval Aviation News/Cmdr. John Norton	Washington, D.C.
NARDAC BBS	(804)445-1627	Zenith Computer Support - List of Federal Micro User Groups	Navy Regional Data Automation Center	NAS Norfolk VA
NASA Spacelink	(205)895-0028	NASA Educational Affairs Div. - Flight Data/Space History	Marshall Space Flight Center	Huntsville AL
National Agricultural Library	(301)344-8510	Agricultural Info/Research Resources	US Department of Agriculture	Beltsville MD
National E-Mail Registry	(800)622-0505	Register Your E-Mail Addresses Online - No Charge	National E-Mail Registry	Treose PA
National Genealogical BBS	(703)528-2612	Family History - Genealogical Research - Gravestone Haunting	National Genealogical Society	Arlington VA
National Inst. Science Technology	(301)948-5717	Micro Elect Info Exchange - Virus Protection/Security Issues	National Inst. of Science and Technology	Gaithersburg MD
National Publishers Exchange	(813)989-1087	Headquarters for NPE Newsletter - Desktop Publishing	Ed Aborn	Tampa FL
NAWESA	(202)433-6639	Naval Weapons Engineering Support	Dept. of Navy / Bill Walsh	Washington, D.C.
New York Macintosh Users' Group	(212)932-9513	Macintosh Downloads - MAC Street Journal/Newsletter	Darryl Peck/New York Mac Users' Group	New York NY
NIST ACTS	(303)494-4775	Automated Computer Telephone Service - Sync PC to NBS Time	Nat. Institute for Standards/Technology	Boulder CO
NOAA	(303)497-5000	Solar Flare/Geomagnetic Data Online	National Oceanographic/Atmospheric Admin	Boulder CO
NOAA Information Technology Exch	(301)770-0069	Microcomputer Applications and Recommendations	National Oceanographic/Atmospheric Admin	Rockville MD
North Dakota State University	(701)237-3661	University BBS - Enter Class 20	University of North Dakota/Pete Lambert	Fargo ND
Northrop Career Access	(213)938-5532	Northrop Aerospace Employment Opportunities - 7N2	Northrop Corp B2 Division	Pico Rivera CA
NYCENET BBS	(212)769-0550	New York City Education Network	New York City Board of Education	New York City NY
CCRWM Infolink	(202)586-9359	Radioactive Waste Disposal/Hazardous Materials Handling	Office of Civilian Radiation/Waste Mgmt.	Washington, D.C.
CERI BBS	(800)222-4922	Educational Statistics and Data - Performance Stats -	US Department of Education	Washington, D.C.
Online Store DLX	(805)656-0379	Online Catalog of PC Hardware/Peripherals - Online Mailorder	Stan Snyder/Online Store	Ventura CA
PHYSICS Forum BBS	(413)545-1959	Physics and Astronomical Sciences	Univ. of Mass. Dept. of Physics/Astronomy	Amherst MA
PKWare BBS	(414)352-7176	Home of PKARC and PKZIP File Compression Utilities	Phil Katz/PKWare Incorporated	Glendale WI
Popular Mechanics Online BBS	(212)582-8369	Automotive, Home/Shop, Electronics/Photography, Science	Popular Mechanics Magazine	New York NY
ProComm Support BBS	(314)474-8477	Home of ProComm 2.4.2 and ProComm Plus Comm Prgms	Thomas Smith/DataStorm Technologies Inc.	Columbia MO
Publishers Information Svce.	(312)342-6919	Xerox Ventura Publisher Support/Laser Printing/Scanning	George Weiners	Chicago IL
Rocky Mountain High	(719)632-2658	Political Discussions - Unix UIUC Public Access - Multiline	Dave Hughes	Colorado Springs CO
SALEMDUG BBS	(202)646-2887	Hazardous Materials/National Dam Watch/Emergency Info	Federal Emergency Management Agency	Washington, D.C.
Scenix Network	(213)372-2282	USA Today - BoxOffice Magazine - Local Real Estate	Connie Trantham/Steve Campbell	Manhattan Beach CA
Science Resource Studies BBS	(202)634-1764	Federal R&D Budget - Technical Labor Market Statistics	National Science Foundation	Washington, D.C.
SEABOARD	(201)473-1991	Support system for ARC, SEADOG, and AXE software.	System Enhancement Associates	Wayne NJ
Second Ring, The	(203)268-5315	Home of RBBS Software	Tom Mack	Trumbull CT
Silicon Valley Information Ctr.	(408)277-5758	Online Computer Magazine Index - Logon PUBLIC	San Jose Public Library	San Jose CA
Society for Technical Comm. BBS	(202)393-3557	STC Job Service, Freelance Registry - Technical Writers	Society for Technical Communication	Washington, D.C.
Synergy	(617)769-5468	Turbo Basic/Turbo C/Quick C/Turbo Pascal/Assembly Language	Garry Powers/Jim Boxmeyer	Northwood MA
Take 3 BBS	(602)482-1001	Reviews of Movies/Videos/ Film Industry Job Clearinghouse	Dave Kiddler	Scottsdale AZ
TBBS Net 104/23	(303)699-9248	Home of The Bread Board System (TBBS) BBS Software	Phil Becker/Soft Inc.	Aurora CO
Telecommunications Relay Station	(501)442-8777	Online Publications - Excellent TBBS System	Gary Funk	Fayetteville AR
Telegodzilla	(503)621-3746	Home of ZModem File Transfer Protocol/YModem/YAM	Chuck Forsberg/Omen Technology Incorp.	Portland OR
Texas Support BBS	(416)284-0682	Support Service for Telix Communications Software	Colin Sampaleanu/Exis Incorporated	West Hill Ontario
Texas State Law Library BBS	(512)463-1371	Online Legal Periodicals and Citation Database	Whole Earth Lactronic Link	San Antonio TX
The Well	(415)332-6106	Very Popular Big BBS - Hourly Charges	Phil Thomas/Thomas Business Systems	Sausalito CA
Thomas Business Systems	(407)395-7057	Used Computer/Peripheral Price List/Online Database	Sun Microsystems	Boca Raton FL
TOPS Support BBS	(415)769-8874	Application Notes, Product Descriptions for TOPS LAN	Dr. James Waldron	Alameda CA
United Nations BBS	(201)795-0733	UN Press Releases - Unix News - Unifef	US Department of Commerce US Naval Obser	Hoboken NJ
US Naval Observatory BBS	(202)653-1079	Time - Date - Sunrise - Sunset - Enter @TCO for Commands	US Robotics Corporation	Skokie IL
US Robotics - Sit UBU Sit	(312)982-5092	Support for US Robotics HST 9600 bps Modems	Denver PC Boardwatch Newsletter	Littleton CO
USA Today Distribution Service	(303)973-4222	Distribution Service for USA Today/Newsbytes/Boxoffice	US Dept. of Commerce US Naval Obser.	Washington, D.C.
USNO Time of Day for Clocks	(202)653-0351	Xmits ASCII Time String - Sync Your PC to USNO Atomic Clock	University of Texas at Austin	Austin TX
UT Library Online Catalog	(512)471-9420	Online Library Card Catalog Listing 3.5 million entries	Veterans Admin - Phoenix Regional Office	Phoenix AZ
VA Property Listing BBS	(602)241-2371	List of VA held property foreclosures	Richard and Barbara Kenney	Orlando FL
Vacation Florida Database	(407)839-0333	Florida Tourism Information/Database of Campsites/Hotels	Ward Christensen/Randy Sues	Chicago IL
Ward and Randy's CBBS	(312)545-8086	World's First and Oldest Micro-based BBS - Since 2/16/78	Steve Root/WeatherBrief Data Services	Salt Lake City
WeatherBank	(801)977-9326	Online Weather Forecasts for Any City - Download Radar Data	Haynes Environmental Systems	Minneapolis MN
WeatherStar Pilot Briefing	(612)296-5426	Pilot Data, Weather, Great Circle Route, Airport Information	Wastern Digital Corporation	San Jose CA
Western Digital Tech Support	(714)756-8176	Hard Drive/Controller Installation and Config Data	XyQuest Inc. - Christine Madsen	Bellerica MA
XyQuest Support BBS	(508)667-5669	Support for XyWrite Word Processor - Custom Keyboard Files		



# DENVER PC BOARDWATCH

LIST OF AREA CODE 303 ELECTRONIC BULLETIN BOARD SYSTEMS AND ON-LINE INFORMATION SERVICES - FEBRUARY 1989

TITLE	PHONE	DESCRIPTION	TYPE	BPS	SOFT	CITY	SYSP
NBS Automated Computer Time	494-4775	ACTS - Sync PC Clock to NBS Atomic Clock	Custom	3/12	Custom	Boulder	Natl. Bureau of Standards
Adelante 104/93	443-8292	Central/Latin America News/Issues	IBM	3/12/24	Opus	Boulder	Zahai Stewart
Adventures Unlimited 104/616	1-223-4534	Online Games - Chess - Traders - More	IBM	3/12/24	QuickBBS	Fort Collins	Ray Randolph
Aerie, The 104/40	292-3162	Science Fiction	IBM	3/12	Opus	Denver	Leland Dirks
AmNet On-line 104/65	1-223-1297	Animal Rights Issues/Animal Rights Echo	IBM	3/12/24	TBBS	Ft. Collins	James Cherry
Arkham Public Library 104/48	494-7970	Children's Games	IBM	3/12/24	Opus	Boulder	Neil Bealy
Boulder Amiga Users Group	494-4470	Amiga Support - Over 1000 Amiga Files	IBM	3/12/24	QuickBBS	Boulder	Ken Fricklas
Byte Shop 104/311	794-5065	Jokes/Good Echowall/Downloads	IBM	3-96HST	QuickBBS	Littleton	Dan O'neal
CBA Information System	329-0159	Continental Basketball Association	IBM	3/12	TBBS	Denver	???
CEC Services	393-6715	ANSI True Basic Support Tools	IBM	3/12	QuickBBS	Denver	???
Champagne Alley	220-5708	Financial Info - Free Exchange of Info	IBM	3/12/24	RBBS	Denver	Patrick Hinde
Chatfield Amory	972-9023	Firearms for Sale/Trade - Online Games	IBM	3/12/24	QuickBBS	Littleton	Dave Bell
Chivillas 104/207	449-7399	Bhagwan Shree Rajneesh followers	IBM	3-96HST	Opus	Louisville	Terry Mooster
Classifieds Plus/Consumers	794-0491	Consumer Interests/For Sale Items	IBM	3/12	RBBS	Littleton	Arnold Peterson
Club Micro 104/88	832-5850	"C" Language/Database/Communication Files	IBM	3-96HST	Opus	Denver	Don Marquart
CMOS-CO Min Operating Systems	322-4078	Amiga/IBM-Utilities-Pictures-Buy/Sell	IBM	3-96MIC	QuickBBS	Denver	Kevin Trullit
CO State Judicial BBS 104/420	831-1704	Colorado State Judicial ADP Department	IBM	3/12/24	QuickBBS	Denver	Scott V. Hopla
Colorado Broadcasters 104/42	572-6256	Commercial Radio Frequency Lists	IBM	3/12	Opus	Denver	Jeff Brothers
Colorado West BBS	1-241-1966	Grand Junction MUG - Ham/Packet Radio	IBM	3-96HayePCBoard	Grand Junction	Wayne Hunt	
Comm-Post, The 104/666	534-4646	Astronomy - 120+ MB of Files - Multiline	IBM	3-96HST	TBBS	Denver	Brian Bartee
Computer Consulting 104/318	973-1002	dBase Database Software Development	IBM	3-96HAY/QuickBBS	Littleton	Jim Bucks	
Computer Linkage 104/444	499-1022	Used Atari/Amiga Equipment Sales	IBM	12/24	Opus	Boulder	Ron Kueski
Computer Repeats Inc.	939-8174	IBM/Compatibles Subscription Board	IBM	3/12/24	PCBoard	Boulder	Don Whitaker
Control Systems 104/417	458-6248	9:00 PM to 7:00 AM	IBM	3-96MIC	RBBS	Denver	Lupe Ramirez
Cook, The 104/419	861-0814	Messages (32 areas) \$10 annual fee.	IBM	3/12	QuickBBS	Denver	Richard Harpar
Corner Pub, The 104/414	759-8619	Oldest User's Group in Area - CPM/IBM	IBM	24	WWIV BBS	Denver	Richard Douglas
CPM SIG INC 104/372	465-1313	Science Fiction/USA Today	IBM	3/12/24	QuickBBS	Broomfield	Al Lundquist
Cyber-Zone, The 104/61	860-0126	Golden Micro Computer Sales/Support	IBM	3-96HST	QuickBBS	Denver	Jonathan Wood
D-Link 1 104/411	936-2791	Role Playing Games	IBM	3/12/24	QuickBBS	Denver	Bob Wells
Dark Crystal, The 104/421	654-1278	IBM Messages	IBM	3/12/24	TCOMM	Denver	Steve Boyd
Data Bank	494-0167	Astronomy Files-Telx/SF Echos/USA Today	IBM	3/12/24	Opus	Denver	Guido Binetti
Day's End 104/20	650-5636	\$0.25 per minute Source Code Downloads	IBM	3/12/24	OPUS	Evergreen	Chris Day
Denver Link-UP	1-976-8800	Back Issue Index, Dialing Directories	IBM	12/24	TBBS	Littleton	Jeffrey Delude
Denver PC Boardwatch 104/555	973-4222	TRS80 Support/16 Online Adventure Games	IBM	3-96DS	TBBS	Niwot	Jack Rickard
Dinosaur Board 104/114	1-652-3595	Graphics Interests	IBM	12/24	QuickBBS	Denver	Chris Anderson
Dinosaur Egg	680-5985	IBM/Atari Downloads - FoRem Net Mail	IBM	12/24	Forum	Denver	Mick Clark
Dog House, The	320-0501	IBM and Amiga Special Interest Areas	IBM	3/12/24	QuickBBS	Littleton	Lonnie Shinault
Eagle's Nest 104/315	933-0701	Education Issues Kindergarten - 12th	IBM	3/12/24	TBBS	Boulder	Ronald Olsen
Education 2000 104/29	449-9807	Electronics Discount World	IBM	3/12/24	QuickBBS	Westminster	Roger Salmen
Emerald City BBS	427-1471	TBBS Software Support - Hayes/USR Modems	IBM	3-96HST	TBBS	Aurora	Daniel Osborn
eSoft Support	699-8222	School Bulletin Board System	IBM	3/12	Opus	Estes Park	Phil Becker
Estes Park High BBS	1-586-4131	Used Aircraft For Sale Database/Bluebook	IBM	3/12/24	Custom	Englewood	Joe Lundstrom
Flightstar Information Service	790-4356	Online Simulation of Medieval Town	IBM	3/12/24	QuickBBS	Fort Collins	Mickey Russell
Fox Empire 104/617	1-484-4359	Online Chess - Adult Areas	IBM	3/12/24	QuickBBS	Lakewood	Andrew Boardman
Fred's BBS	233-1316	Programming - Home and Garden	IBM	3/12/24	Opus	Denver	Fred Schupner
Free Information Exch. 104/89	699-1516	Objectivism/Libertarian Views	IBM	3/12/24	Opus	Denver	Charles Frnka
Free Thought BBS 104/423	860-9259	Home of QKNEWS - 104/213	IBM	3/12/24	QuickBBS	Broomfield	Bill Williams
Front Range Online Systems	466-2296	Fort Collins Group - Computer Express	IBM	3/12/24	Wildcat	Fort Collins	Gary Jones
Front Range PC Users Group BBS	1-493-4094		IBM	3/12/24			Tom Oppenheimer



Gay Community 104/19	795-1215	Messages / Downloads for Homosexuals	.IBM	3/12	QuickBBS	Littleton	???
GDP Technologies BBS	673-9470	Outstanding IBM Shareware/Programming	.IBM	3/12/24	Wildcat	Lafayette	Tom Gethys
Grotto, The	694-9050	Amiga, Pascal - Ebert Personal Computers	.IBM	3/12/24	TBBS	Aurora	Vincent Veritas
In To The Night 104/31	659-1897	IBM Game Files 9PM-7AM	.IBM	3/12	Opus	Fort Lupton	Kris White
Into The Wind 104/63	443-9073	Support for Shamaal Software 10P-11A	.IBM	3/12/24	Opus	Boulder	Dana P'Simer
JEFFCOM BBS	273-6951	Jefferson County Public Schools	.IBM	3/12	RBS	Golden	Ron Dries
King's Market Bookshop 104/115	665-6091	Books, Writers, On-line Adventure Games	.IBM	3/12/24	TBBS	Boulder	Jim Burt
Lakewood Department of Safety	987-7388	Police Sponsored - Law Enforcement Msgs	.IBM	3/12	RBS	Wheatridge	Larry Scheidegger
Lensman, The	979-8953	Science Fiction/Fantasy Fandom News/Info	.IBM	3/12/24	GT Power	Littleton	Greg Bradt
Lodge, The 104/212	420-0305	Arvada Quick BBS Board	.IBM	3/12/24	QuickBBS	Arvada	Harold "Monty" Montrose
M&D's Travelling Circuits	665-3746	Conversation - Techie Topics - Cooking	.IBM	3/12/24	CC-BBS	Louisville	Marshall & DeDe Barry
MACE 104/416	797-8090	Metro Area Computer Enthusiasts	.IBM	3/12	QuickBBS	Denver	Bucky Carr
Manville Info Services 104/978	978-3946	Business Software / Apple Macintosh	.IBM	3/12	Fido	Littleton	???
MASC Library	497-5848	PC SIG CD ROM Online 4:30PM-7AM Only	.IBM	3/12/24	RBS	Boulder	US Department of Commerce
Master Work, The 104/55	341-6614	In Search of the Lost Chord	.IBM	12/24	Opus	Aurora	Roy Prickett
Metamorphosis	1-772-7229	Small Minihost System	.IBM	3/12/24	Minihost	Lafayette	Tony Ferris
MicroLink B 104/108	972-9600	1 Gigabyte Files - USA Today - Multiline	.IBM	3-96HST	TBBS	Littleton	Girard Westenberg
MicroLink D 104/711	237-8575	Over 200 MB - Doesn't Break	.IBM	3-96HST	TBBS	Lakewood	???
MicroLink Minus Two 104/204	369-5734	Professional Comp. Sales Inc./Astronomy	.IBM	3/12/24	TBBS	Denver	Paul Smith
Midrash 104/18	289-6864	Messianic Judaism - Religious/Philosophy	.IBM	3/12/24	QuickBBS	Denver	Daniel Segard
Midrash 104/18	733-1340	Triathlons - Race Schedules - Fitness	.IBM	12/24	RBS	Denver	Bill Ankele
Mill High BBS	671-7308	Fido Board	.IBM	3/12/24	Fido	Aurora	Dave Miller
Mohave Net Gateway 104/62	426-0623	Science Fiction/Medical Echo	.IBM	3/12/24	QuickBBS	Denver	Claude Warren
NetComm BBS	790-8349	Weather - Online Games - 110 MB	.IBM	3/12/24	GT Power	Littleton	Bill Watts
New Age Bulletin Board, The	366-1106	Health, Ecology, Philosophy	.IBM	3/12	TBBS	Aurora	Hal/Fran Piser
NightFlyer 104/210	467-9199	Basic/DBase/Assembler/C Programming	.IBM	3/12/24	QuickBBS	Arvada	Marcel Madonna
Nurse Link 104/52	270-4936	UCHSC School of Nursing	.IBM	3-96HST	TBBS	Littleton	Larry McNeill
OKY BBS 104/113	494-0533	Armenian Electronics Consultant	.IBM	3/12/24	QuickBBS	Boulder	Onig Kouyoumdjian
On-Line Consulting 104/45	449-5251	Consultant Directory/Desktop Publishing	.IBM	3/12/24	Opus	Estes Park	Lee Lasson
On-Line Shopping Service	442-5125	Boulder Home Grocery Delivery \$5 + 5%	.IBM	3/12	Chairman	Boulder	Pete Dempsey
P2B2 S 104/51	329-3337	Public Psychiatry / AI Themes 6PM-8AM	.IBM	3/12/24	QuickBBS	Denver	Claude Warren
Paranet Omega/The Novastar Grp	431-1343	Paranormal/Religion/UFO/Oddities	.IBM	3/12/24	QuickBBS	Wheatridge	Mark Owens/Mike Corbin
PCIS 104/904	789-4610	PC Info Services - List of User Groups	.IBM	3/12/24	Opus	Englewood	Phil Kaiser
Pentax Support	460-1637	CD WORM/Flatbed Scanner/Fanfold Laser	.IBM	3-96HST	TBBS	Broomfield	Chris Anderson
Phoenix TBBS 104/739	841-9570	Multiline - INFOMAT - Chat areas	.IBM	3/12/24	TBBS	Parker	Larry Kayser
Pinecliff 104/28	444-7073	170 Meg - Online Order for CDB Systems	.IBM	3/12/24	Opus	Boulder	Craig Baker
Priority Business Sys. 104/41	771-8107	PC Magazine/Tech Journal Files	.IBM	3/12	Opus	Littleton	John Bilbro
Professional System, The	740-2223	Writers, Lawyers, EDP Auditors	.IBM	3/12	TBBS	Littleton	Bob Voorhees
Quest, The	429-4617	Online Chess/Tradewars/Empire/Trivia	.IBM	3/12/24	QuickBBS	Denver	???
Quick BBS Support Board 104/24	423-3114	Home of Quick BBS Software	.IBM	3/12/24	QuickBBS	Arvada	Adam Hudson
R.A.B.I.T.	757-9509	Colorado Highway Department - Planning	.IBM	3/12	TBBS	Denver	Colorado Dept. Highways
Realtime Control & Forth Board	278-0364	Vesta Technology/Denver Forth Int. Group	.IBM	3/12/24	PCBoard	Wheatridge	Jack Woehr
RIBBS Support Hdqtrs. 104/54	343-6707	Support for CoCo RIBBS Software	.IBM	3/12/24	QuickBBS	Aurora	Ron Bihler
Rocky Mountain RBS	750-2107	INFO NEEDED	.IBM	3/12	RBS	Aurora	Steve Kornreich
Short Line 104/36	778-7312	Varied Topics, FidoNet, BlinkleyTerm	.IBM	12/24	Opus	Lakewood	Alan Applegate
SnarQuest I 104/604	469-7014	The Tavern - Hot 386 with Games/ReadMACs	.IBM	12-96DS	QuickBBS	Broomfield	John Denny
SnarQuest V 104/317	973-0625	The Tower	.IBM	3/12/24	QuickBBS	Littleton	Radford Walker
SnarQuest VI - The Mirage	933-2870	Online Games - 120 MB of Downloads	.IBM	3/12/24	Phoenix	Littleton	Jon McDonald
SnarQuest III 104/209	469-0125	The TALL Snarf Messages-Games GOQ	.IBM	12-96DS	QuickBBS	Broomfield	Elliott Mosher
SnarQuestII 104/46	761-1634	The Arena On-line Games, Fantasy, AD&D	.IBM	3-96HST	QuickBBS	Englewood	Dax Davis
Sound Doctrine Bulletin Board	680-7209	Christian BBS / Sound Doctrine Church	.IBM	3/12/24	TBBS	Aurora	Tim Williams
Space Environment Service Cntr	497-5000	NOAA Solar Flare Forecast / Advisory	.IBM	3/12	PBBS	Boulder	US Dept of Commerce
Space Network	494-8446	Space Exploration Information	.IBM	3/12/24	TBBS	Boulder	Tom Meyer
Squirrel's Nest	1-242-7977	Grand Junction BBS	.IBM	3/12/24	PCBoard	Grand Junction	Allan Worley



# DENVER PC BOARDWATCH

LIST OF AREA CODE 303 ELECTRONIC BULLETIN BOARD SYSTEMS AND ON-LINE INFORMATION SERVICES - FEBRUARY 1989

TITLE	PHONE	DESCRIPTION	TYPE	BPS	SOFT	CITY	SYSP
Steamboat Information	1-879-6741	Info on Steamboat Springs Area	IBM	3/12	TBBS	Steamboat Springs	???
Stone Wall 104/112	499-2676	Tradewars/ReadMAC Files	IBM	3/12/24	QuickBBS	Boulder	Mike Reetz
TBBS Net 104/23	699-9248	The Byread Board Systeem Support	IBM	3/12/24	TBBS	Aurora	Phil Becker/eSoft Inc.
TelePeople 104/69	455-3283	Lifestyles - Singles - Divorced	IBM	3/12/24	TBBS	Denver	Terry Travis
Terus Public BBS 104/43	469-7161	MINDS AI TextBase Indexer Support	IBM	3-96HST	Opus	Broomfield	Todd Hill
Terus RegUser 104/44	341-1404	MINDS Online Textbase - USA TODAY	IBM	3-96HST	Opus	Aurora	Bart Henthorn
The 8th Sea 104/610	252-9235	Net 104 Coordinator - Lots of Echomail	IBM	3/12/24	QuickBBS	Northglenn	Rod Lamping
This End Up 104/30	429-2445	USA Today Distribution Node	IBM	3/12/24	Opus	Westminster	Steve Carnes
Translations Unlimited	988-5765	Language Translation 6PM-6AM	IBM	3/12/24	Minihost	Lakewood	Jon Johnson
Trout Unlimited	499-2328	Trout Fishing / Water Condition Reports	IBM	3/12	Fido	Boulder	Ralph Stewart
Twin Peaks PCBoard	1-651-0225	On-line Games	IBM	3/12/24	PCBoard	Longmont	Ken Krueger
Value Line, The 104/510	366-1511	MultibBS System Opus/QuickBBS/RBBS	IBM	3/12	QuickBBS	Aurora	Chris Millikin
Watchdesk, The 104/66	450-0822	Safety - Arson - Hazardous Material	IBM	3-96HST	QuickBBS	Thornton	Emit Hurdlebrink
Waterton RBBS	977-7353	Martin Marietta Employees Only	IBM	12/24	RBBS	Denver	Ken Beaudrie
Weyr, The 104/211	429-2975	Good Collection of Game Software	IBM	3/12/24	Opus	Westminster	Ken Shimko
Wizardry 104/630	670-1416	Fantastic Online Blackjack/Casino Games	IBM	3/12/24	QuickBBS	Evergreen	Marvin Cook
World Peace BBS 104/415	320-4822	Current Events, Politics, Religion	IBM	3/12/24	QuickBBS	Denver	Bucky Carr
YUCCA Mountain Project Group	236-9812	US Bureau of Reclamation - Dept of Int.	IBM	12-19200	PCBoard	???	Mark Pabst
Land of the Lost	322-7562	Robot Hobbyists/AV/Electronic Repair	IBM PCjr	300	Fido 11W	???	STACK
C.A.R.L. Denver	830-0519	Colorado Alliance of Research Libraries	Tandem	24	Custom	Denver	N/A
C.A.R.L. Denver	830-1165	Colorado Alliance of Research Libraries	Tandem	3/12/24	Custom	Denver	N/A
C.A.R.L. Denver	830-1546	Colorado Alliance of Research Libraries	Tandem	12	Custom	Denver	N/A
C.A.R.L. Denver	830-1547	Colorado Alliance of Research Libraries	Tandem	12	Custom	Denver	N/A
C.A.R.L. Denver	830-1548	Colorado Alliance of Research Libraries	Tandem	12	Custom	Denver	N/A
C.A.R.L. Denver	830-2199	Colorado Alliance of Research Libraries	Tandem	3/12/24	Custom	Denver	N/A
C.A.R.L. Denver	830-2241	Colorado Alliance of Research Libraries	Tandem	3/12/24	Custom	Denver	N/A
C.A.R.L. Denver	830-2265	Colorado Alliance of Research Libraries	Tandem	3/12/24	Custom	Denver	N/A
C.A.R.L. Denver	830-2297	Colorado Alliance of Research Libraries	Tandem	3/12/24	Custom	Denver	N/A
C.D. Players	825-0419	Computer Discount On-line Store/Amiga	Amiga	3/12/24	TBBS	Denver	Tony Scott
Arvada 68K BBS	469-9862	Amiga/Macintosh/Atari ST/Motorola 68000	Amiga1000	3/12/24	BBS-PC	Arvada	Reid Bishop
Greenline	650-1509	Amiga Messages and Downloads	Amiga1000	3/12/24	BBS-PC	Broomfield	Phil Green
Outer Limits BBS, The	1-484-1699	Amiga System Emulating IBM-XT	Amiga2000	3/12/24	QuickBBS	Fort Collins	Gary Whicker
Aces High	366-8159	Apple Programming/Messages	Apple	3/12/24	GBBS	Aurora	Jeff & Steve Brothers
APSNat	693-6737	Aurora Public Schools Network	Apple	3/12/24	GBBS	Aurora	Columbia Middle School
Box's Cabin, The	424-9185	Apple / Technical Notes	Apple	3/12/24	Protree	Arvada	Kent Roberts
C.A.C.H.E	745-4960	CO Apple & Compatible Home Enthusiasts	Apple	3/12/24	GBBS	Denver	Gary Edwards
City Morgue, The	442-8498	Necromaniacal Fixation With Stiff Bodies	Apple	12/24	GBBS	Boulder	???
Denver Deal-Net	989-9245	Hearing Impaired/Computing	Apple	3/12/24	Protree	Lakewood	David Sheneman
Enterprise	377-1005	Local Radio Freq List - Star Trek Theme	Apple	3/12/24	Protree	Lakewood	Jim Starke
Funny Farm	989-0915	Apple Only BBS	Apple	12/24	???	Lakewood	???
Genesis Project	287-8267	Apple II General	Apple	3/12/24	Protree	Commerce City	Gene Humbert
Greeley-Com-Net	1-351-8861	Modem Users Board	Apple	3/12/24	GBBS	Greeley	Lowell Shatraw
L&L Support	420-3568	Primary GBBS Pro Software Support BBS	Apple	3/12/24	GBBS	Arvada	Lance Taylor-Warren
Laboratory BBS/SUPERTAC	287-5274	Commodore with Laboratory Theme	Apple	3-96HST	GBBS	Denver	Professor Beaker
Land of London	987-2094	Fantasy Runequest Games	Apple	3/12	AlphaII	Lakewood	???
LES-COM-net	233-5824	Lesley College Comm Net - GBBS Multiline	Apple	3/12/24	GBBS	Wheatridge	George Willett
Mom's BBS	690-4913	General Message/Socializing	Apple	3/12	ALFA-III	???	???
Pro Denver	428-0372	Proline Unix Emulator for Apple	Apple	3/12/24	Proline	Denver	Vince Cooper
S.O.B. Lanes, Inc.	452-6902	Apple Board with Bowling Theme	Apple	3/12	GBBS	Westminster	Simon



Bavarian's Gausthaus	367-5877	New Atari BBS Software System	Atari	3/12	Express	Aurora	Bavarian
Four Wheeling BBS, The	469-4954	Jeeping / Camping / Outdoors	Atari	3/12/24	STadel	Broomfield	John Ferguson
Genetic BBS	1-857-6881	Titanic Historical Society Information	Atari	3/12	BBS Exp	Fort Lupton	L.A. Sneeringer
Hozerville	985-9760	Atari 130 with 53 MB of files	Atari	3/12/24	TODAMIS	Denver	Jacey Squires
Mile High Forum #5	431-1404	Outstanding Atari ST Database - HST 9600	Atari	3-96HST	Forem	Arvada	???
Mycroft	777-8898	Horizon Computer/National Atari BBS List	Atari	3/12	TODAMIS	Denver	Phil Michaelson
Ron and Shannons BBS	978-0298	Atari Support 5.4 MB XE 130	Atari	3/12/24	OASIS	Englewood	Ron/Shannon Sellers
Skyline Computers	457-0320	Atari ST Support, Files, etc.	Atari	3/12/24	Forem	Denver	Dave Lloyd
Vault, The	796-0539	USAF/ZMAG Member	Atari	3/12	Forem	Englewood	Craig Steiner
Crickel's Hollow	499-9828	Commodore BBS	C-128	3/12	C-Net	???	Crickel
Phasar	745-4305	Teen Conversation - Advice Column	C-128	3/12	C-Net	Aurora	Roy Rush
Regimental Headquarters	375-9556	Commodore - Military Theme	C-128	3/12	C-Net	Denver	Bob Greear
Acme Detective Agency	933-2377	Profanly Allowed	C-64	3/12	Visions	???	Snake-Eyes
Albuquerque Starport	279-4655	Commodore Network Systems International	C-64	3/12	C-Net	Golden	Greystoke Mindmaster
Comm-Net Information Service	366-7177	C-64/C-128/Amiga Info-Droids-Messages	C-64	3/12	Custom	Aurora	Jon Almon
Gridiron, The	797-6003	Football Theme	C-64	3/12	ImageBBS	???	???
Hack Shack	688-8406	Commodore	C-64	3/12	C-Net	Castle Rock	Richard Miller
Mailbox BBS	421-8050	Ham Radio/Sports/Swap/Adult Jokes	C-64	3	C-Net	Westminster	The Lineman
Phone Connection	426-7969	Commodore 64 BBSing	C-64	3/12	C-Net	Westminster	???
Pit Stop, The	364-3927	Auto Racing Theme	C-64	3/12	C-Net	???	The Rascal
Pyroland	745-5213	Pyromania - Burning Things	C-64	300	TelExcel	???	Pyro Pete
Realm, The	937-0215	Royal Theme - Complete with King	C-64	3/12	C-Net	Lakewood	Bob Hennessy
Seven-Eleven	699-7603	Commodore 64 system	C-64	3/12	NewImage	Denver	Hack Man
Vern's Terminal Exchange	433-1150	Commodore Messages/Downloads/Ads	C-64	3/12	Ivory	Denver	???
Coco County Airport	761-3097	TFS Color Computer Support	CoCo	3/12/24	RIBBS	Aurora	Paul Sweat
Computer Know How	279-0224	Hard Disk Installation / Tech Support	CP/M	3/12	ZBYE	Golden	John Holmgren
Fantasy Mountain PBBS	278-8369	Deaf and Handicapped Issues ASCII TTY	CP/M	3/12/24	PBBS	Golden	Steve Shockley
KNC Storm Center 4 Weather	839-1188	National Weather Service Digital Radar	DEC VAX	3/12	Custom	Denver	KCNC TV
Mile High Epsom User Group BBS	752-2943	MHEUG Club Board	EPSON	3/12/24	TBBS	Aurora	Dale Bucknam
Dialamatch 118/The Brokerage	796-9721	Adult Matchmaking	Franklin	3/12	DYM	Englewood	Bob Simpson
HP-BBS 104/34	1-229-9719	Jokes, Amazing but True stories	HP-Vectra	3/12	TBBS	Fort Collins	Rob Diehl
LaserWriting Desktop Service	741-4122	Laser Printing/Scanning/Linotronic 300	MAC	3/12	RedRyder	Denver	Bill Wright
Mile High Mac Meet	759-9159	Denver Macintosh Users Group	MAC	3-96HST	WWIV	Denver	Jon Taylor
MLM International Networks	933-2654	Online Mail - TANDY Computers - MCI Tel.	MAC	12	MouseEx	Littleton	Michael Makizzic
Publishing Resources Inc.	442-2011	Laser Printing/Publishing/Linotronic	MAC	3/12	RedRyder	Boulder	???
Radscon	1-675-3225	Rangely PDP11 BBS Multiline - Games	PDP-11/45	3/12	RSTS9.4	Rangely	John Henderson
Radscon	1-675-3326	Password RADSCAN	PDP-11/45	3/12	RSTS9.4	Rangely	John Henderson
Boulder Public Library System	444-2057	Library Research	Tandem	3/12	Custom	Boulder	Eyring Research Institute
Boulder Public Library System	444-2074	On-Line Card Catalog - Member C.A.R.L.	Tandem	12	Custom	Boulder	Eyring Research
Kings Bench 104/615	377-6725	Compatible Computer Info Exchange	TANDY1000	3/12/24	Fido	Denver	Ralph Allison
College Board, The	979-7299	Space Wars Game	Tandy2000	3	???	Littleton	Tom Nielson
Mountain Man TI	797-6783	Denver TI Users Group - Texas Instrument	TI	3/12/24	Tigger	Littleton	Roy Bartee
Nitelink PBBS	277-1447	Texas Instruments - Lists 193 TI BBS	TI 99/4A	3/12/24	Paradigm	Golden	Keith Amann
Controller Board/TBBS Island	690-9423	Computer Supplies - Onlire Sales	TRS	3/12	TBBS	Aurora	Mike Hastings
Crossroads	499-0457	Discussion	TRS	3/12	TBBS	Lakewood	Mark Bradford
Photo Tech	781-1079	TRS 80 / HAM / Video / Camera	TRS	3/12/24	TBBS	Englewood	Jim Gerritz
PSINet	985-2634	Parapsychology / Near Death Experiences	TRS	3/12	TBBS	Denver	William Tedder
Terra Main	830-8098	TRS80 Model 4 Support-Messages-SciFi	TRS80 4	3/12	Tandy Tr	Denver	Barry Hunsicker/Capt Kirk
Alpha BBS/intercomex	367-1935	Enter ALPHA - Ham Radio/Space Topics	Unix Mini	3/12	UNaXcess	Denver	Cyro Lord/Robert Brumley
Temple of Doom	771-9523	INFO NEEDED	unknown	3/12	???	Englewood	???
GLOBAL Information	286-7914	Fee Subscription / Software Database	VAX	3/12/24	Custom	Denver	Jim Comstock
USGS Quick Epicenter Determ.	279-6374	Earthquake Data CLASS:NEIS USER:QED	VAX	300 TE2	???	???	Bruce Presgrave
Discordian Society	969-8195	Disagreeable Conversation	VAX	12/24	???	???	Steven Crandall



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